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WILDLIFE REVIEW

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UNITED STATES DEPARTMENT OF THE INTERIOR
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WILDLIFE REVIEW

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UNITED STATES DEPARTMENT OF THE INTERIOR

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Except as indicated, abstracts are by Kenneth J. Chiavetta, editor,
and Mary L. Llewellyn, editorial assistant.

AVAILABILITY OF REPRINTS AND PUBLICATIONS

Wildlife Review does not distribute any of the papers abstracted herein, nor can the editor of Wildlife Review undertake to obtain copies of these papers for anyone. A reprint of an article published in a journal may be available from the author, from the organization with which the author is affiliated, or from the publisher of the journal in which the article appeared. When an author's address is known, it is shown in square brackets following the citation. Addresses of most wildlife organizations can be obtained from the Conservation Directory, an annual publication available from the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036, at a price of $1.50 a copy. This directory lists more than 900 agencies and organizations concerned with natural resource use.

NATURAL RESOURCES & CLIMATE

U.S. Department of the Interior. THE NATURAL RESOURCES OF.... USDI. For sale by Supt. Documents. WR 131: 2

A series of publications on the natural resources of the states includes condensed information on the history and physical characteristics of the state, its mineral, land, water, and power resources, and its forests, fish and wildlife, and outdoor recreation. Programs of the Federal Natural Resources Agencies are briefly described. The following publications are available:

The Natural Resources of Alaska	76 p.	1966	65¢
The Natural Resources of Arizona	52 p.	1963	45¢
The Natural Resources of Colorado	72 p.	1963	50¢
The Natural Resources of Idaho	72 p.	1965	50¢
The Natural Resources of Indiana	52 p.	1967	45¢
The Natural Resources of Massachusetts	64 p.	1964	45¢
The Natural Resources of Montana	68 p.	1964	50¢
The Natural Resources of Nevada	64 p.	1964	45¢
The Natural Resources of New Mexico	68 p.	1964	50¢
The Natural Resources of Ohio	56 p.	1963	45¢
The Natural Resources of Oregon	68 p.	1964	50¢
The Natural Resources of South Dakota	72 p.	1967	65¢
The Natural Resources of Texas	64 p.	1965	45¢
The Natural Resources of Utah	57 p.	1965	45¢
The Natural Resources of Washington	72 p.	1963	50¢
The Natural Resources of West Virginia	64 p.	1964	45¢

SOILS

Beverage, Woodrow W., and others. SOIL SURVEY OF BARBOUR COUNTY, WEST VIRGINIA. SCS. ii + 65 p., 10 figs. + single-fold maps based on aerial photos and bound in. Apr. 1968. Sold by Supt. Documents. WR 131: 2

With a section on wildlife.

Camp, Wallace J., and others. SOIL SURVEY OF SPARTANBURG COUNTY, SOUTH CAROLINA. SCS. ii + 80 p., 9 figs. + single-fold maps based on aerial photos and bound in. Apr. 1968. WR 131: 2

With a section on wildlife and fish.

BIBLIOGRAPHIES, DIRECTORIES, BIOGRAPHY, HISTORY

Adomaitis, V. A., H. K. Nelson, and F. B. Lee. THE CHEMICAL AND RELATED TECHNICAL LITERATURE OF WILDLIFE CONSERVATION. J. Chem. Documentation 7(4): 247-250. Nov. 1967. WR 131: 3

[Northern Prairie Wildl. Res. Center, Jamestown, N. Dak.] "This paper reports the availability of chemical and related facts in wildlife conservation research. It also serves literature chemists, information scientists, and librarians as a guide to information in a relatively new field of scientific endeavor."

Halloran, Arthur F., and Robert H. Shields. A ZOOLOGICAL BIBLIOGRAPHY OF THE ARANSAS NATIONAL WILDLIFE REFUGE, TEXAS. Great Plains J. 5(2). 5 p. Spring 1966. WR 131: 3

List of 76 titles dealing with Aransas Natl. Wildl. Refuge, including many on the whooping crane.

McRoy, C. Peter, and Ronald C. Phillips. SUPPLEMENTARY BIBLIOGRAPHY ON EELGRASS, ZOSTERA MARINA. US F&WS, Spec. Sci. Rept.--Wildl. no. 114. 14 p. Jan. 1968. Price 15¢. WR 131: 3

[Univ. Alaska, College.] Second bibliography of Zostera marina literature brings the earlier listing by R. C. Phillips [WR 115: 3] up to 1966.

PLANTS--GENERAL, ECOLOGY, TECHNIQUES

Avery, T. Eugene. FORESTER'S GUIDE TO AERIAL PHOTO INTERPRETATION. USDA Agr. Handbook 308. iii + 40 p., 29 figs. Oct. 1966. WR 131: 3

This handbook was written as a practical reference on techniques of aerial photo interpretation in forest inventory. It is for the forester with a casual knowledge of the subject. While oblique photographs are occasionally useful for interpretation, this manual emphasizes stereoscopic interpretation of vertical aerial photographs available from various agencies of the U.S. Department of Agriculture. With training, the forester can use aerial photographs to locate property boundaries and trails, determine bearings and distances, identify classes of vegetation, and measure areas. Experience will enable him to improve the efficiency of forest inventories by distributing field samples on the basis of photo stratifications. In some instances, he may even be able to estimate timber volumes directly from the photographs. Aerial photographs are best used to complement, assist, or reduce field work rather than take its place.--From abstr.

Snyder, Nathan, and Phillip R. South. THE 13-FOOT BROWSE SURVEY. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 200-213, 1 fig. [1967.] WR 131: 3

[U.S. Forest Serv., Missoula, Mont.] A method for estimating crown cover, vegetative composition, key browse condition, and game use on big-game ranges is described. Pellet group plots are 1/300 acre in size. A staff 6.8 feet in length, marked at half-foot intervals, is used to aid in estimating crown cover and for delineating the size of pellet group plot. The information is recorded on a form adapted for automatic data processing.--From abstr.

Stewart, D. R. M. THE EPIDERMAL CHARACTERS OF GRASSES, WITH SPECIAL REFERENCE TO EAST AFRICAN PLAINS SPECIES. PART 1. Botanische Jahrbücher 84(1): 63-116 + 18 figs. on 2 pls. 10 Feb. 1965. WR 131: 3

[Kenya Game Dept., Nairobi, Kenya.] Description of the epidermis of 163 spp. of grasses with a key to 57 genera, in two parts [Part 2, below]. Fragments of leaf epidermis remaining undigested in the feces or stomach contents of grazing wildlife may be identified to facilitate diet studies.

Stewart, D. R. M. THE EPIDERMAL CHARACTERS OF GRASSES, WITH SPECIAL REFERENCE TO EAST AFRICAN PLAINS SPECIES. PART 2. Botanische Jahrbücher 84(2): 117-174. 12 Apr. 1965. WR 131: 3

[Kenya Game Dept., Nairobi, Kenya.]

WILDLIFE--NATURAL AREAS & REFUGES

Bigalke, R. SOUTH AFRICA'S FIRST GAME RESERVE. Fauna & Flora no. 17. p. 13-18 + 2 figs. 1966. WR 131: 4
The Pongola Game Reserve was proclaimed in 1894.

Butcher, A. Dunbavin. STATE WILDLIFE RESERVES SYSTEM / VICTORIA. Victoria Fisheries & Wildl. Dept., Wildl. Contrib. no. 6. ii + 30 p., 3 figs. + 1 map. Mar. 1965. WR 131: 4
[Fisheries & Wildl. Dept., Melbourne, Australia.] Information on organization, regulations, policy, management, and location of 23 present preserves.

Cowling, S. J. THE STATE WILDLIFE RESERVES OF VICTORIA. Wildl. Circ. no. 19. 5 p., illus. [1966.] WR 131: 4
[Fisheries & Wildl. Dept., Melbourne, Victoria, Australia.] List of 24 state wildlife reserves and examples of developmental work being done to improve wildlife habitat. Reprint from Victoria's Resources 8(2), June-Aug. 1966.

Frantzich, Wensell. THE AIRPORT AS A GAME SANCTUARY. Loon 40(1): 20. Mar. 1968. WR 131: 4
[6740 Harriet Ave. S., Minneapolis, Minn.] Mammals and birds normally associated with less populous areas are becoming numerous in the area of the Minneapolis-St. Paul International airport since hunting has been banned.

Myczkowski, Stefan. PROJEKT SIECI REZERWATÓW ŚCISŁYCH W TATRZAŃSKIM PARKU NARODOWYM. [A PROJECT FOR THE NETWORK OF STRICT NATURE RESERVES IN THE TATRA NATIONAL PARK.] Ochrona Przyrody 32: 41-88, 22 figs. 1967. In Polish with English summ. WR 131: 4
A network of 13 strict nature reserves comprising 7453 hectares of the Tatra National Park is proposed.

New York State Museum. THE HUDSON BIOLOGICAL RESOURCES. Hudson River Valley Comm. [47] p., maps. [1966.] WR 131: 4
A listing of 92 sites and areas in the Hudson River Basin which have been found to be biologically significant. Sixteen sites which should be given priority in a program for the preservation of biological sites and resources, are recommended and treated in greater detail.

U.S. Fish & Wildlife Service. NATIONAL WILDLIFE REFUGE PUBLICATIONS. Refuge Leaflet no. 407. 2 p. Aug. 1967. WR 131: 4
A complete listing of refuge publications is available without cost from the Bureau of Sport Fisheries and Wildlife, Division of Wildlife Refuges, Washington, D.C. The listing is under constant revision and includes refuge publications mentioned in previous issues of Wildlife Review [WR 78: 11-12, WR 85: 8, WR 92: 13-15, and WR 99: 8-9]. The publications are issued in four series: Refuge Leaflets (General Series); Mammal List Series; Bird List Series; and Historical Leaflets. Refuge leaflets and bird lists are now available for approximately 150 wildlife refuges.

Webster, W. Harley, editor. NATURAL AREAS PRESERVED BY THE NATURE CONSERVANCY TO JANUARY 1, 1965. Nature Conservancy News 15(1). 30 p. Spring 1965. WR 131: 4
[Nature Conservancy, 2039 K St. N.W., Washington, D.C.] Natural areas in 30 states under the jurisdiction of the Nature Conservancy are listed in 3 tables. Areas totaling 17,491 acres are held directly by Nature Conservancy; 12,970 acres have been conveyed to others, and 22,160 acquired by other organizations are aided by Nature Conservancy.

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Zharkov, I. V., editor. NATURE AND GAME RESERVES OF THE U.S.S.R. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 67-51261. ii + 55 p., 10 figs. + large folded map. 1967. Russian original published by Byuro Tekh. Inform. Glavnogo Upravleniya Okhotnich'e Khoz. & Zapoved. Pri Sov. Min. RSFSR in 1964. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 5

Statistics of 66 nature reserves (totaling 4,267,400 hectares) grouped by geographic zone.

WILDLIFE--NATURE PROTECTION & RARE & EXTINCT SPECIES

Banko, Winston E. HAWAII'S ENDANGERED BIRDS--A STATUS APPRAISAL. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 247-261. [1967.] WR 131: 5

[Bur. Sport Fisheries & Wildl., Hilo, Hawaii.] Sixty-nine different kinds of birds are endemic to the Hawaiian Archipelago. Twenty-five (38%) of these unique birds are now known or believed extinct. Another 22 kinds (31%) are listed as either rare or endangered. The status of the remaining 22 living species and subspecies of Hawaiian birds may be classified provisionally either as uncertain or relatively secure.--From abstr.

Burris, Oliver E. GAME TRANSPLANTS IN ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 93-104. [1965.] WR 131: 5

[Alaska Dept. Fish & Game, Juneau.] Summary of successes (black-tail deer, elk, bison and hare) and failures (hare, muskrat, beaver, deer, pheasant) and many others.

Christensen, Glen C. THE STATUS OF NEVADA'S EXOTIC GAME BIRD PROGRAM. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 84-93. [1967.] WR 131: 5

[Nev. Fish & Game Comm., Reno.]

Gordon, Ladd S. NEW MEXICO'S EXOTIC MAMMAL PROGRAM. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 77-83. [1967.] WR 131: 5

[N. Mex. Dept. Game & Fish, Santa Fe.]

Heptner, V. G. THE REHABILITATION OF CERTAIN MAMMAL SPECIES IN CIRCUMSTANCES OF ENVIRONMENTAL DEGRADATION. IUCN Publ. New Ser. no. 9. p. 194-196. 1967. WR 131: 5

[Moscow Univ., Moscow, USSR.] Introduction of exotic species often achieves unsatisfactory results; on the other hand, re-introductions are normally more successful. In the USSR particular interest in this subject has arisen as a result of research on the sable, European bison and beaver. The more important results concerning the two last named species are summarized.

Hibben, Frank C. THE ROLE OF EXOTIC ANIMALS IN GAME MANAGEMENT. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 125-130. [1964.] WR 131: 5

[Univ. N. Mex., Albuquerque.]

Linduska, Joseph P. ENDANGERED SPECIES--THE FEDERAL PROGRAM. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 40-48. [1967.] WR 131: 5

[Bur. Sport Fisheries & Wildl., Washington, D.C.]

Scheffer, Paul M. EXOTIC NON-GAME BIRD INTRODUCTIONS--PRO AND CON. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 113-122. [1967.] WR 131: 5

[Natl. Audubon Soc., Honolulu, Hawaii.] Thirty-eight of 56 spp. introduced are non-game species and of these 26 spp. are considered well established.

Walker, Ronald L. A BRIEF HISTORY OF EXOTIC GAME BIRD AND MAMMAL INTRODUCTIONS INTO HAWAII--WITH A LOOK TO THE FUTURE. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 94-112. [1967.] WR 131: 6
[Hawaii Div. Fish & Game, Honolulu.]

WILDLIFE--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Blus, Lawrence J., and W. D. Klimstra. SOME COACTIONS OF CANADA GEESE AND SMALL MAMMALS. Trans. Ill. Acad. Sci. 55(3-4): 191-197. 1962. WR 131: 6
[Patuxent Wildl. Res. Center, Laurel, Md.] Species type and population level of rodents seem to show a relationship to the feeding activities of the Canada goose. Peromyscus maniculatus was recorded in areas of wheat heavily grazed by geese; Mus preferred areas of light grazing. Microtus were taken only at the lightly-used edge of a pasture.

Chernyavskii, F. B. [ON THE INTERRELATIONSHIPS OF THE ARCTIC FOX AND SOME SPECIES OF TUNDRA BIRDS.] Zool. Zhur. 46(6): 937-940. 1967. [From Bird-Banding 39(1), 1968. In Russian.] WR 131: 6
Following a review of previous work (12 titles) the author's observations of the arctic fox (Alopex lagopus L.) on Wrangel Island in 1964 are presented. The fox was the chief predator of the snow goose, whose main colony there has been reduced to 300,000. Predation pressure was especially sévere in years of lemming scarcity. On the island as a whole there were about 100 occupied fox burrows, their greatest density (2 burrows/1000 ha) being near snow goose colonies. The main opponent of the fox was the snowy owl, whose prowess in repelling it caused small nesting colonies of snow geese, black brant, and common eiders to be formed around the owls' nest sites, a situation that the author calls "a classic example of the tundra nesting community."

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

Bigham, Sam R., J. Leland Hepworth, and Richard P. Martin. A CASUALTY COUNT OF WILDLIFE FOLLOWING A FIRE. Proc. Okla. Acad. Sci. 45: 47-50. 1965. WR 131: 6
[Okla. Coop. Wildl. Res. Unit, Stillwater.] A burned-over area of 400 acres was observed for animal life; a cottontail rabbit, 2 quail coveys, 2 snakes, and 3 box turtles were seen. Dead animals consisted of 25 box turtles, a rattlesnake, and a copperhead.

Bjärvall, Anders. EN BIOCIDUNDERSÖKNING PÅ JÄRVAFÄLTET 1964. [THE EFFECTS OF BIOCIDES ON TWO BIRD POPULATIONS AT JÄRVAFÄLTET, NORTH OF STOCKHOLM, 1964.] Vår Fågelvärld 24: 1-11. 1965. [From Bird-Banding 37(1), 1966. In Swedish with English summ.] WR 131: 6

Bramble, W. C. DO HERBICIDES AFFECT GAME? Pa. Game News 39(7): 26-29, illus. July 1968. WR 131: 6
[Purdue Univ., Lafayette, Ind.] Four areas along a power line right-of-way were treated with combinations of 2,4-D plus 2,4,5-T at varying rates with water or fuel oil. New growth provided a continued food supply for wildlife not available in the surrounding woods.

Dustman, Eugene H., and Lucille F. Stickel. PESTICIDE RESIDUES IN THE ECOSYSTEM. Am. Soc. Agronomy Spec. Publ. no. 8. p. 109-121. 1966. WR 131: 6
[Patuxent Wildl. Res. Center, Laurel, Md.] "Present knowledge demonstrates the existence of pesticide residues nearly everywhere. Transport through the ecological system and biological accumulation in higher animals have been shown wherever sufficient examination has been made.... The impact of these new components of the ecosystem has appeared as death, reproductive impairment, disruption of species balance, and behavioral alteration."

Engel, Ronald E., and Raymond A. Brechbill. RADIATION SURVEILLANCE IN WILDLIFE. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 146-150. [1967.] WR 131: 7
[U.S. Public Health Serv., Las Vegas, Nev.]

Harriman, Arthur E. ACCEPTANCE OF CATIONS AS CHLORIDES IN DRINKING TESTS WITH TWO SPECIES OF BIRDS AND THREE SPECIES OF MAMMALS. Am. Midland Nat. 79 (2): 396-401. Apr. 1968. WR 131: 7
[Okla. State Univ., Stillwater.]

Hunt, E. G. THE COOPERATIVE APPROACH IN HANDLING WILDLIFE-PESTICIDE PROBLEMS. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 344-348. [1964.] WR 131: 7
[Calif. Dept. Fish & Game, Sacramento.]

Keith, James O. AN APPROACH TO THE SOLUTION OF PESTICIDE-WILDLIFE PROBLEMS. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 353-356. [1964.] WR 131: 7
[Univ. Calif., Davis.]

McFarland, Larry Z., and Paula B. Lacy. ACUTE ANTICHOLINESTERASE TOXICITY IN DUCKS AND JAPANESE QUAIL. Toxicol. & Appl. Pharmacol. 12(1): 105-114, 8 figs. Jan. 1968. WR 131: 7
[Univ. Calif., Davis.] Summary: Acute parathion dosing of ducks and quail induced parasympathomimetic responses which included increased salivation, miosis, increased nictitating membrane response, tachycardia, various forms of heart block, polypnea associated with dyspnea, and an elevated hematocrit. The responses to parathion were similar to the responses to acetylcholine and acetyl-β-methylcholine in these birds.

Meeks, Robert L. THE ACCUMULATION OF ^{36}Cl RING-LABELED DDT IN A FRESHWATER MARSH. J. Wildl. Mgmt. 32(2): 376-398, 1 fig. Apr. 1968. WR 131: 7
[3500 Lattimore Road, Port Clinton, Ohio.] Abstract: An enclosed 4-acre marsh at the southwestern edge of Lake Erie was treated by helicopter with 3.9 millicuries of chlorine-36 ring-labeled DDT at a rate of 0.2 lb technical DDT per acre. Radio-labeled DDT residues were traced until 15 months after the application. Whole body residues were of major concern, although tissues were assayed from vertebrates too large to assay entire. DDT residues were detected in sago pondweed (Potamogeton pectinatus), duckweed (Lemna minor), bladderwort (Utricularia vulgaris), crayfish (Orconectes immunis), tadpoles (Rana pipiens), and carp (Cyprinus carpio) when first assayed 4 hours after the application. The alga Cladophora averaged 96 ppm DDT, or 3,125 times the environmental level, 3 days after the application. A northern water snake (Natrix sipedon) accumulated 36 ppm 13 months after the application. The maximum level in carp was 19 ppm in the soft palate, also after 13 months. Plants and most invertebrates accumulated their highest residues during the first week; vertebrates required longer periods. Algae, the pondweeds (Potamogeton spp.), duckweed, crayfish, and small carp should make good indicator species of environmental DDT residues.

Otterlind, Gunnar. BIOCIDFRÅGANS UTVECKLING. [THE DEVELOPMENT OF THE BIOCIDE PROBLEM. Vår Fågelvärld 23: 143-150. 1964. [From Bird-Banding 36 (1), 1965. In Swedish.] WR 131: 7
"To sum up, it can be said that nowadays the biocide problem manifests itself as a dismal brew of too far-reaching progress optimism, mighty commercialism--not seldom involving world-wide concerns--ignorance, and irresponsibility. It is an international phenomenon whose extreme development is made possible by the lack of adequate financial resources possessed by the non-commercial institutions and governmental agencies enabling them [to] follow and to control progress along these lines. When the negative effects of biocides pertain not only to nature around us but also to man himself, his health, and his future, it is indeed high time to institute counter-measures--and effective ones at that."

Reichel, W. L., and C. E. Addy. A SURVEY OF CHLORINATED PESTICIDE RESIDUES IN BLACK DUCK EGGS. Bull. Environmental Contamination & Toxicol. 3(3): 174-179, 1 fig. May-June 1968. WR 131: 8

[Patuxent Wildl. Res. Center, Laurel, Md.] It is indicated "that pesticide residues occur widely in eggs of black ducks throughout the Atlantic Flyway."

Schifferli, Alfred. AUSWIRKUNGEN EINER INSEKTIZID-AKTION GEGEN DEN GRAUEN LARCHENWICKLER AUF DIE VOGELWELT IM GOMS (OBERWALLIS). [THE EFFECTS OF SOME INSECTICIDES AGAINST THE LARCH BUDMOTH UPON THE AVIFAUNA OF GOMS (UPPER VALAIS).] Ornithol. Beob. 63(2): 25-40. June 1966. In German with English summ. WR 131: 8

[Schweizerische Vogelwarte, Sempach, Switzerland.] Areas treated with DDT (1.25 kg/ha) and Phosphamidon (1.00 kg/ha) were censused for bird mortality. No cases of poisoning were established on the area treated with DDT. The bodies of 77 adult birds were recovered from the Phosphamidon area. No young birds fledged from the nests under observation. Analyses of 30 adults and 15 nestlings revealed considerable residues of Phosphamidon.--From summ.

Spires, H. E. REGULATIONS OF PESTICIDES IN AGRICULTURE. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 340-343. [1964.] WR 131: 8

[Calif. Dept. Agr., Sacramento.]

Stead, Frank M. PESTICIDES IN ENVIRONMENTAL HEALTH. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 349-352. [1964.] WR 131: 8

[Calif. Dept. Public Health, Sacramento.]

Van Den Hoek, J., and J. A. Eygenraam. RADIOACTIVE CONTAMINATION IN A WILD BIRD POPULATION. Ardea 53: 1-8. 1965. [From Bird-Banding 36(4), 1965.] WR 131: 8

In 1962 and 1963, 10 first-year white-fronted geese were captured in the Netherlands and tested for Strontium 90 (Sr^{90}). The average Sr^{90} level for birds hatched in 1961 was 10 pCi Sr^{90}/g Ca, and for individuals hatched in 1962, 29 pCi Sr^{90}/g Ca. The increase in 1962 was attributed to nuclear explosions in the autumn of 1961.

Wurster, Charles F., Jr., and David B. Wingate. DDT RESIDUES AND DECLINING REPRODUCTION IN THE BERMUDA PETREL. Science 159(3818): 979-981. 1 Mar. 1968. WR 131: 8

[State Univ. N.Y., Stony Brook.] Abstract: Residues of DDT [1,1,1-trichloro-2,2-bis(p-chlorophenyl) ethane] averaging 6.44 parts per million in eggs and chicks of the carnivorous Bermuda petrel indicate widespread contamination of an oceanic food chain that is remote from application of DDT. Reproduction by the petrel has declined during the last 10 years at the annual rate of 3.25%; if the decline continues, reproduction will fail completely by 1978. Concentrations of residues are similar to those in certain terrestrial carnivorous birds whose productivity is also declining. Various considerations implicate contamination by insecticides as a probable major cause of the decline.

WILDLIFE--PARASITES & DISEASES

Corbet, Philip S., and A. E. R. Downe. NATURAL HOSTS OF MOSQUITOES IN NORTHERN ELLESMERE ISLAND. Arctic 19(2): 153-161, 1 fig. June 1966. In English with French and Russian abstr. WR 131: 8

[Canada Dept. Agr., Ottawa, Ontario.] Mosquitoes (Aedes impiger and A. nigripes) have been observed feeding on the red-throated loon and the king eider. Musk oxen and birds nesting in water-logged sites seem to be the most likely hosts.

Friend, Milton. HISTORY AND EPIDEMIOLOGY OF RABIES IN WILDLIFE IN NEW YORK. N.Y. Fish & Game J. 15(1): 71-97, 17 figs. Jan. 1968. WR 131: 9

[N.Y. State Conserv. Dept., Albany.] Abstract: Rabies was present in New York State in the early 1900's, chiefly in the lower Hudson Valley and near other population centers such as Rochester and Buffalo. Over the next 40 years it spread to much of the remainder of the state. Dogs were the principal source of infection, but by 1948 immunization and stray dog control had virtually eliminated it in this species. However, several wildlife species have replaced the dog as the major vectors of the disease in recent years. Although the first laboratory-confirmed case among wildlife was in a skunk in 1929, this species has only recently become an important vector in this state. The fox has been the primary vector. Outbreaks have mainly involved domestic livestock. The number of cases in humans have been minor. The first significant epizootic occurred during the summer of 1945 among foxes in central Broome County, and since then there have been outbreaks in other parts of the state. The incidence has shown periodic fluctuations with peaks every four to five years that generally coincide with highs in fox populations. The disease occurs throughout the year, but is most prevalent in April, August, and October.

Jellison, William L., Kenneth A. Neiland, and Cluff E. Hopla. PARASITES OF ALASKAN VERTEBRATES. Dept. Army and Univ. Okla. Res. Inst. iv + 73 p. 1 Nov. 1965. WR 131: 9

[Univ. Okla. Res. Inst., Norman.] Host-parasite list for mammals, land birds, water birds, fish, and amphibia and reptiles, plus a listing of parasites recorded from Alaska with the exception of fleas.

Murray, M. D., and W. J. M. Vestjens. STUDIES ON THE ECTOPARASITES OF SEALS AND PENGUINS: III. THE DISTRIBUTION OF THE TICK IXODES URIAE WHITE AND THE FLEA PARAPSYLLUS MAGELLANICUS HEARDI DE MEILLON ON MACQUARIE ISLAND. Australian J. Zool. 15: 715-725. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 9

Parks, Eugene. CONTROL OF RABIES IN WILDLIFE IN NEW YORK. N.Y. Fish & Game J. 15(1): 98-111, 2 figs. Jan. 1968. WR 131: 9

[N.Y. State Conserv. Dept., Albany.] Abstract: Three programs are being carried on in New York to control the spread of rabies in wildlife. The most effective is that of fox trapping by state trappers administered by the Conservation Department. Trapping by county employees has been of limited value, and bounty payments by counties have been ineffective. Operation of the state program is described, and other control methods are discussed. Research concerning a chemical reproduction inhibitor that might be used to control fox abundance indicated diethylstilbestrol (DES) to be effective on female foxes and to be the most promising. Because of unrelated factors, however, a field test was inconclusive. Achromycin proved satisfactory as an additive to baits for physiologically marking animals that ate them.

Schimmel, Bob. RABIES / HERE ARE THE QUESTIONS AND ANSWERS ON RABIES IN ARIZONA. Ariz. Wildl. Views 15(3): 5-13, illus. May-June 1968. WR 131: 9

[Ariz. Game & Fish Dept., Phoenix.] Incidence of rabies in the U.S. has decreased in man and domestic dogs and cats, but is still prevalent in foxes, skunks, and bats.

Youatt, W. G., and L. D. Fay. SURVEY FOR SALMONELLA IN SOME WILD BIRDS AND MAMMALS IN MICHIGAN. Mich. Dept. Conserv., Res. & Development Rept. no. 135. 1 p. Feb. 1968. WR 131: 9

[Mich. Dept. Conserv., Lansing.] Samples were obtained from hunter-killed game; no Salmonella were recovered from any of the specimens examined.

WILDLIFE--POPULATIONS & FLUCTUATIONS

Lauckhart, J. Burton. CALCULATING GAME POPULATIONS. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 84-86. [1965.] WR 131: 10
[Wash. Dept. Game, Olympia.]

WILDLIFE--BIOMETRICS

Dodge, W. E., C. M. Loveless, and N. B. Kverno. DESIGN AND ANALYSIS OF FOREST-MAMMAL REPELLENT TESTS. Forest Sci. 13(3): 333-336. 1967. WR 131: 10
[Wildl. Res. Center, Denver, Colo.] Abstract: A randomized complete block design consisting of 10 blocks with 10 trees per block for each of 8 treatments is applicable for evaluating candidate forest-mammal repellents on Pseudotsuga manziesii (Mirb.) Franco seedlings. Percent damage for each treatment group of 10 trees is transformed to arc sine, and null hypotheses tested by analysis of variance at $a = .05$. If the null hypothesis for treatments is rejected, Scheffé's S-method is employed to contrast the k experimental means at $a = .10$. The arc sine transformation provides an acceptable model and tends to minimize heterogeneous variance and nonnormality.

WILDLIFE--TECHNIQUES

Formozov, A. N., and Yu. A. Isakov. ORGANIZATION AND METHODS OF CENSUSING BIRDS AND HARMFUL RODENTS. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 66-51055. vi + 269 p., illus. 1967. Russian original published by Akad. Nauk SSSR Inst. Geogr. in 1963. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 10
This collection of 28 papers contains a discussion of all stages of research in the development and adoption of various methods of censusing commercial and useful insectivorous birds and harmful rodents.

Fullagar, P. J. THE USE OF RADIO TELEMETRY IN AUSTRALIAN BIOLOGICAL RESEARCH. Proc. Ecol. Soc. Australia 2: 16-26. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 10

Grieb, Jack R., and David C. Bowden. EFFECT OF PRE-HUNTING SEASON NOTIFICATION ON HUNTER QUESTIONNAIRE DATA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 233-238. [1966.] WR 131: 10
[Colo. Game, Fish & Parks, Fort Collins.] Discussion and conclusions: Evaluation of data presented indicates that hunter reports of hunting activity, harvest and location of this activity do not differ significantly between the group who received pre-hunting season notification and those who did not. Thus, we may conclude that a pre-hunting season contact has little or no effect on the answers given on questionnaires. For this reason it is recommended that current hunting license stubs be used to enhance the accuracy and efficiency of determining annual hunting statistics for small game and waterfowl species.

Lauckhart, J. Burton. METHODS OF GATHERING KILL STATISTICS. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 228-232. [1967.] WR 131: 10
[Wash. Dept. Game, Olympia.]

Schladweiler, John L., and I. J. Ball, Jr. TELEMETRY BIBLIOGRAPHY EMPHASIZING STUDIES OF WILD ANIMALS UNDER NATURAL CONDITIONS. Bell Museum Nat. Hist. Tech. Rept. no. 15. 31 p. May 1968. WR 131: 10
The 634-item bibliography is divided into two parts. The first, dealing with the use of telemetry to study movement and behavior of wild animals under natural conditions, is believed to be relatively complete through April 1968. The second part, covering the use of telemetry to obtain many kinds of biological data from both man and other animals, is not complete. References were selected on the basis of their possible relevance to research on wild animals or because of emphasis on new techniques which may be applicable to field studies.--From introduction.

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Czuhai, Eugene, and Charles T. Cushwa. A RESUME OF PRESCRIBED BURNINGS ON THE PIEDMONT NATIONAL WILDLIFE REFUGE. U.S. Forest Serv. Res. Note SE-86. 4 p. (unnumbered). Feb. 1968. WR 131: 11
[Piedmont Natl. Wildl. Refuge, Round Oak, Ga.] Abstract: Information concerning the effects of prescribed burning on wildlife habitat in the Atlantic Piedmont is meager. Much information on this topic was in unpublished quarterly reports written by Piedmont Wildlife Refuge managers. This information has been summarized and presented chronologically.

Davison, Verne E., and Clyde A. Scott. ENHANCEMENT OF WILDLIFE HABITAT ON PRIVATELY OWNED LANDS. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 223-226. [1966.] WR 131: 11
[SCS, Beaverton, Oreg.] "In summary, high quality habitat is the most productive and most satisfying environment for wildlife, species by species. On private (and public) lands, the owner or operator is the key to more abundant wildlife resources. The Soil and Water Conservation Districts and their cooperating agencies are the logical leaders to join hands and minds with the landowners in every community that desires more wildlife, fish, and outdoor recreation."

DeLeonardis, Salvatore. THE BUREAU OF LAND MANAGEMENT--ITS ROLE IN THE MANAGEMENT OF ALASKA'S WILDLIFE RESOURCES. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 81-83. [1965.] WR 131: 11
[Alaska State Office, Bur. Land Mgmt., Juneau.]

Dziedzic, Eugene S., and J. Burton Lauckhart. FEEL FREE TO HUNT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 239-244. [1966.] WR 131: 11
[Wash. Dept. Game, Olympia.] The "Feel Free to Hunt" program is designed to provide free and unlimited access to quality private lands under terms of a management lease agreement guaranteeing to farmers enforcement of necessary closed areas on their land. The enforcement feature of this plan is the significant departure from previous programs.

Hines, William W. USE OF SYNECOLOGICAL INVESTIGATIONS IN GAME RESEARCH AND MANAGEMENT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 212-217. [1966.] WR 131: 11
[Oreg. State Game Comm., Portland.]

Humphrey, Nyles. A DISTRICT MANAGER'S DILEMMA--WILDLIFE HABITAT AND MULTIPLE USE MANAGEMENT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 150-156. [1966.] WR 131: 11
[U.S. Bur. Land Mgmt., Malta, Mont.]

Ikehara, Isaac I. CONSERVATION OF FISH AND WILDLIFE ON A PACIFIC ISLAND--GUAM, U.S.A. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 485-491. [1967.] WR 131: 11
[Guam Div. Fish & Wildl., Agana.]

Knott, Norman P. WILDLIFE POPULATION MOVEMENT CONTROL THROUGH MANIPULATION OF FOOD AND OTHER FACTORS. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 122-124. [1965.] WR 131: 11
[Wash. Dept. Game, Olympia.]

Lind, Carl V. WILDLIFE HABITAT MANAGEMENT AND BLM: A BOON OR BOONDOGGLE? Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 157-161. [1966.] WR 131: 11
[U.S. Bur. Land Mgmt., Billings, Mont.]

Medeiros, Joseph S. ISLAND OF LANAI GAME MANAGEMENT PROGRAM. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 214-220. [1967.] WR 131: 12
[Hawaii Div. Fish & Game, Kahului, Maui.] Status of axis deer, feral goats, mouflon, pronghorn, ring-neck pheasant, chukar partridge, Japanese quail, California Valley quail, Indian grey francolin, Reeve's pheasant, Rio Grande turkey, and Erckel's francolin.

PROCEEDINGS OF THE FORTY-FOURTH ANNUAL CONFERENCE OF WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS, SAN FRANCISCO, CALIFORNIA, JULY 6-8, 1964. xviii + 367 p., mimeo. [1964.] $2.00, paper, from John W. McKean, secretary, P.O. Box 3503, Portland, Oregon 97208. WR 131: 12
This paper-bound volume contains 67 papers classified as follows: general, 13; commissioners', 8; big game, 12; small game, 6; fisheries, 15; conservation enforcement, 4; information and education, 4; and a pesticide panel of 5 papers. Many of the technical game papers are listed in this issue of WR.

PROCEEDINGS OF THE FORTY-FIFTH ANNUAL CONFERENCE OF WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS, ANCHORAGE, ALASKA, JULY 6-9, 1965. xii + 326 p., mimeo. [1965.] $2.00, paper, from John W. McKean, secretary, P.O. Box 3503, Portland, Oregon 97208. WR 131: 12
This volume contains 65 papers classified as follows: general, 6; commissioners', 9; game, 15; fisheries, 23; conservation enforcement, 7; and information and education, 5. Many of the technical game papers are listed in this issue of WR.

PROCEEDINGS OF THE FORTY-SIXTH ANNUAL CONFERENCE OF WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS, BUTTE, MONTANA, JULY 12-15, 1966. xvi + 451 p., mimeo. [1966.] $2.00, paper, from John W. McKean, secretary, P.O. Box 3503, Portland, Oregon 97208. WR 131: 12
This volume contains 83 papers classified as follows: commissioners', 9; game, 27; fisheries, 27; conservation enforcement, 9; information and education, 5; and recreation, 6. Many of the technical game papers are listed in this issue of WR.

PROCEEDINGS OF THE FORTY-SEVENTH ANNUAL CONFERENCE OF WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS, HONOLULU, HAWAII, JULY 16-20, 1967. v + 506 p., mimeo. [1967.] $2.00, paper, from John W. McKean, secretary, P.O. Box 3503, Portland, Oregon 97208. WR 131: 12
This volume contains 57 papers classified as follows: commissioners', 16; game, 24; fisheries, 9; conservation enforcement, 5; and information and education, 3. Many of the technical game papers are listed in this issue of WR.

Quimby, Don C. A REVIEW OF LITERATURE RELATING TO THE EFFECTS AND POSSIBLE EFFECTS OF SAGEBRUSH CONTROL ON CERTAIN GAME SPECIES IN MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 142-149. [1966.] WR 131: 12
[Mont. State Univ., Bozeman.] Species: pronghorn, sage grouse, mule deer, elk, white-tailed deer, moose, and bighorn.

Riney, Thane, and others. UTILIZATION OF WILDLIFE IN DEVELOPING COUNTRIES. German Foundation Developing Countries, Rept. Intern. Conf. Bad Godesberg 7-10 Dec. 1964. p. 1-172 + xvi. [1964.] WR 131: 12
The following papers were presented: The importance of wildlife as a marginal form of land use in developing countries, Thane Riney; Wildlife utilization and technical assistance, W. Ehmann; Role and tasks of systematic game management from the point of view of development politics, D. von Hegel; Estimating the numbers of game populations, A. de Vos; Possibilities of wildlife management in hunting areas, W. Leslie Robinette; Utilization of wildlife in National Parks, Jean-Paul Harroy; Wildlife utilization schemes in developing countries, H. P. Ledger; Experience in wildlife utilization in South-Rhodesia, A. S. Mossman; How to overcome the conflicts between a utilization of wildlife and other forms of rational exploitation of land, H. H.

Roth; Overcoming the conflicts between wildlife management and other forms of land utilization; wildlife and forests in East Africa, H. Hesmer; Responsibilities of the governments of developing countries in the field of wildlife utilization, Thane Riney; The tasks of education, training and research, F. F. Darling; Potential contributions of the donor countries in the field of education and research, Wolf Herre; and Potential contributions of international organizations to education and research, Fritz Vollmar.

Webb, William L., and Earl F. Patric. SEEDING HERBACEOUS PERENNIALS IN FOREST AREAS FOR GAME FOOD AND EROSION CONTROL. N.Y. Fish & Game J. 8(1): 19-30. Jan. 1961. WR 131: 13

[Syracuse Univ., Syracuse, N.Y.] Forty spp. and varieties of plants were tested and 12 spp. were successfully established along recently abandoned haul roads and skid trails in the central Adirondacks. Small additions of phosphate fertilizer improved stand density, height-growth, and over-all success of legumes but had slight effect on grasses. Medium red clover and mammoth red clover were heavily utilized by deer and other game. A mixture of four grass species seeded on steep slopes prevented erosion but did not provide much game food.--From abstr.

WILDLIFE--INTRODUCTIONS

de Vos, Antoon, and George A. Petrides. BIOLOGICAL EFFECTS CAUSED BY TERRESTRIAL VERTEBRATES INTRODUCED INTO NON-NATIVE ENVIRONMENTS. IUCN Publ. New Ser. no. 9. p. 113-119. 1967. WR 131: 13

[Univ. Waterloo, Waterloo, Ontario, Canada.]

Fritter, R. S. R. ANIMAL INTRODUCTIONS AND THEIR ECOLOGICAL EFFECTS IN EUROPE. IUCN Publ. New Ser. no. 9. p. 177-180. 1967. WR 131: 13

[Fauna Preservation Soc., London, England.] The ecological consequences of successful vertebrate introductions in Europe are discussed under the following headings (I) changes in habitat; (II) changes in the balance of predators; (III) impact on species occupying similar ecological niches; (IV) augmenting of natural resources; and (V) damage to natural and artificial resources.

Gottschalk, John S. THE INTRODUCTION OF EXOTIC ANIMALS INTO THE UNITED STATES. IUCN Publ. New Ser. no. 9. p. 124-140. 1967. WR 131: 13

[Bur. Sport Fisheries & Wildl., Washington, D.C.] Review paper of history and status of vertebrates introduced into the U.S.

Holdgate, M. W. THE INFLUENCE OF INTRODUCED SPECIES ON THE ECOSYSTEMS OF TEMPERATE OCEANIC ISLANDS. IUCN Publ. New Ser. no. 9. p. 151-176. 1967. In English with French summ. WR 131: 13

[Nature Conservancy, London, England.] The dominant groups in the world's fauna and flora--placental mammals and angiosperms--evolved at a time when the continental arrangement was broadly similar to the present. Consequently transoceanic dispersal was not a requirement for evolutionary success. Oceanic islands surrounded by large water barriers have been colonized only by a few species with exceptional dispersal capacity. Many major plant and animal groups are completely excluded from such oceanic biotas which are spoken of as disharmonic. Because of their isolation, island populations show evolutionary divergence and because of a low level of competition species may invade new habitats. Remote islands are further characterized by a great abundance of breeding marine birds and mammals which are immune from ground predators. These unusual and isolated ecosystems are peculiarly vulnerable to interference. Among the remote temperate islands of the southern hemisphere there remain a significant number which have suffered only minimal disturbance and a list of these has been drawn up as a basis for conservation proposals.--From summ.

Howard, Walter E. ECOLOGICAL CHANGES IN NEW ZEALAND DUE TO INTRODUCED MAMMALS. IUCN Publ. New Ser. no. 9. p. 219-240. 1967. In English with French summ. WR 131: 14

[Univ. Calif., Davis.] Few places in the world equal New Zealand in the magnitude of ecological changes resulting from introduced mammals. The principal reason that they caused such extensive erosion and have markedly altered the species composition of the vegetation, sometimes irreversibly, is because many of the endemic plants, which evolved in the absence of grazing and browsing mammals, are highly palatable but have little innate resistance to heavy, selective browsing or grazing. Also, some of the soils are highly susceptible to erosion, once the vegetative cover is removed, and torrential rainfall is common. A new and stable equilibrium of the animal-vegetation-soil complex has developed where browse-resistant and unpalatable plants have replaced the sensitive plants that were killed by the introduced mammals. The improper handling of fire and merino sheep has also been responsible for extensive areas of erosion. It is proposed that mammalian densities are determined primarily by the suitability of the habitat and the self-limitations owing to intraspecific stress factors (psychological, competition for food or mates, territoriality, weather, disease, or other vicissitudes of life), and that interspecific competition, especially between mammalian predators and their prey, often is only of minor significance.--From summ.

Lavrov, N. P., and V. S. Pokrovsky. ECOLOGICAL RELATIONSHIPS BETWEEN LOCAL FAUNA AND SPECIES COMMERCIALLY INTRODUCED IN THE USSR. IUCN Publ. New Ser. no. 9. p. 181-193. 1967. In English with French summ. WR 131: 14

[USSR Min. Agr., Moscow, USSR.] Work on acclimatization of certain economically valuable species assumes an ever increasing importance in the USSR. Results and perspectives are discussed, including re-introduction of indigenous fauna. Diversity of geographical conditions in the USSR as well as social and economical peculiarities have provided the necessary opportunities for carrying out work on the enrichment of fauna, and some very interesting results have been achieved on acclimatization of four fur-bearing mammals: Ondatra zibethica, Myocastor coypus, Procyon lotor, and Mustela vison.--From summ.

Ovington, J. D., and G. A. Petrides, rapporteurs. TOWARDS A NEW RELATIONSHIP OF MAN AND NATURE IN TEMPERATE LANDS. PART III. CHANGES DUE TO INTRODUCED SPECIES. IUCN Publ. New Ser. no. 9. 259 p. 1967. WR 131: 14

Twenty-three papers dealing with the ecological effects of introduced plant species and introduced animal species. These papers were presented at the 10th Technical Meeting of the IUCN held at Lucerne, Switzerland, during 26-30 June 1966. Most of the papers concerning introduced animal species are listed in this issue of WR.

Riney, T. UNGULATE INTRODUCTIONS AS A SPECIAL SOURCE OF RESEARCH OPPORTUNITIES. IUCN Publ. New Ser. no. 9. p. 241-255. 1967. WR 131: 14

[FAO/UN, Rome, Italy.] "The principal thesis is that, while we are often involved with one aspect of field biology and are interested in discovering more facts and principles to increase understanding of ungulate ecology, we frequently overlook the wonderful opportunities for research arising from introductions."

Scott, Peter. CAUSE AND EFFECT IN THE INTRODUCTION OF EXOTIC SPECIES. IUCN Publ. New Ser. no. 9. p. 120-123. 1967. WR 131: 14

[Wildfowl Trust, Slimbridge, Gloucestershire, England.]

WILDLIFE--ECONOMIC & OTHER VALUES

Alexander, G., T. Mann, C. J. Mulhearn, I. C. R. Rowley, D. Williams, and D. Winn. ACTIVITIES OF FOXES AND CROWS IN A FLOCK OF LAMBING EWES. Australian J. Exptl. Agr. Animal Husbandry 7: 329-336. Aug. 1967. [From J. Mammal. 49 (1), 1968.] WR 131: 14

Marsh, R. E. METHODS OF CONTROLLING RODENTS AND BIRDS IN RICE FIELDS. Congrès Protection Cultures Tropicales (Marseille, 1965). p. 633-637. 1966. In English with French summ. WR 131: 15

The use of poison baits is most frequently recommended as a control method for rats usually accompanied by prebaiting. Fumigants are also effective; trapping is more practical as a means of censusing the population before and after a control program. Habitat alteration and trapping are effective for muskrats. Avian pests are best controlled with noise-makers, light beacons, or aircraft.

Turček, F. J. THE ROLE OF ANIMALS IN BARING AND SOIL EROSION ON KARST-LAND. Acta Zool. Acad. Sci. Hungaricae 11(1-2): 205-215. 1965. [From Bird-Banding 36(4), 1965.] WR 131: 15

Mammals--domestic and wild (mostly rodents)--are chiefly destructive to plant cover, whereas birds are mostly helpful through preying on the rodents and through seed dispersal. The author recommends "the elimination of grazing ...protection of carnivores and birds of prey...and permanent afforestation."

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Cummings, Maynard W., chairman. PROCEEDINGS: THIRD VERTEBRATE PEST CONTROL CONFERENCE / MARCH 7, 8 AND 9, 1967. iv + 177 p. 1967. Copies available from Rex E. Marsh, University of California, Davis, California 95616, at $3.00. WR 131: 15

The following technical papers were presented: Aircraft as a means of baiting ground squirrels, Rex E. Marsh; Problems in county-wide rodent control programming, Loring White; Epizootic ecology in the training program of the vector-borne disease section, Harold E. Stark; The current status of plague in California, Keith F. Murray; The current status of wild animal rabies in California, George L. Humphrey; Good practice in vertebrate pest control, Philip J. Spear; Review of animal repellants, Jack F. Welch; Animal control--progress, problems and professionalism, Robert M. Sutton, Jr.; Rats, bombs, and paradise--the story of Eniwetok, William B. Jackson; Blackbirds--depredation, research and control in Ohio and the midwest, Thomas M. Stockdale; Measuring bird damage to corn, John T. Linehan; Blackbird damage control with chemical frightening agents, Paul F. Woronecki, Joseph L. Guarino, and John W. DeGrazio; Blackbird behavior, Gordon W. Boudreau; Population control of herring gulls by the embryocide, Sudan Black, David K. Wetherbee; Control of nuisance pests in suburbia, Howard A. Merrill; Birds and airports, Erwin W. Pearson; The role of the Agricultural Extension Service in vertebrate pest control, Maryin D. Davis; Starling control in livestock feeding areas, John W. DeGrazio, Richard R. West, and Jerome F. Besser; The summer European starling problem in Tulare County, William R. Clark; The use of live traps to remove starlings and protect agricultural products in the state of Washington, Vincent Bogatich; Winter starling control with DRC-1339, Paul E. Levingston; Winter starling control in Idaho, Nevada, and Oregon, Homer S. Ford; A method of controlling jack rabbits on a range rehabilitation project in California, Frank A. Wetherbee; The status and use of gophacide, Voit B. Richens; Biotelemetry--its use in vertebrate control studies, Wendell E. Dodge; Rodent problems on private forest lands in Northwestern California, Jarrold B. Cone; Biological control of vertebrate pests, Walter E. Howard; Recent developments in the control of vertebrate problem animals in the Province of the Cape of Good Hope, Republic of South Africa, Douglas Hey; and Federal wildlife importation regulations: the why and wherefore, Joseph P. Linduska.

Heinrich, F. [INJURIES TO THE BEECH BARK CAUSED BY WILDLIFE.] Les (Bratislava) 23(11): 487-489. 1967. [From Bibliog. Agr. 32(6), 1968. In Czech.] WR 131: 15

Howard, W. E. PRINCIPLES OF VERTEBRATE ANIMAL CONTROL. Congres Protection Cultures Tropicales (Marseille, 1965). p. 627-629. 1966. In English with French summ. WR 131: 16

[Univ. Calif., Davis.] Control techniques include habitat or biological control, chemical control, sterilization, traps, wetting agents which reduce an animal's resistance, shooting, exclusion by fences or other barriers, and various types of frightening devices.

Koehler, James H., chairman. SECOND VERTEBRATE PEST CONTROL CONFERENCE / MARCH 4 AND 5, 1964. xi + 160 p. 1964. Copies available from Maynard W. Cummings, Extension Wildlife Management Specialist, University of California, Davis, California 95616, at $2.75. WR 131: 16

The following technical papers were presented: Testing and registration of new control materials, Donald A. Spencer; The role of industry in developing new materials for vertebrate pest control, Walter M. Zeck; The role of pest control operators in vertebrate pest control, Philip J. Spear; Animal population ecology and control fundamentals, Kenneth E. F. Watt; Starlings in the Pacific Northwest, H. Nelson Elliott; Starlings in California, Charles C. Siebe; Methods of controlling blackbird damage to field corn in South Dakota, John W. De Grazio; Chemical bird repellents, Frederick M. Baumgartner; Sound in vertebrate pest control, Hubert Frings; The control of vertebrate problem animals in the Province of the Cape of Good Hope, Republic of South Africa, Douglas Hey; Pest control methods and people, J. E. Swift; Hawaiian sugar cane rat control methods and problems, William R. Smythe; Forest animal damage--research and control methods, Nelson Kverno; Rabbit control, Warren V. Johnson; Bait mixing equipment in vertebrate pest control, Percy F. Wright; Commensal rodents--roof rat control in urban areas, Dean H. Ecke; Bats, their public health importance and control with special reference to Trinidad, Arthur M. Greenhall; Animal control in New Zealand, W. E. Howard; Occupational hazards to pest control operators with special reference to pesticides, Irma West; Antifertility agents in vertebrate pest control, Donald S. Balser; Diseases derived from wildlife, Harald N. Johnson, The evolution of plague control in California, Keith F. Murray; and Highlights of bird control research in England, France, Holland, and Germany, John L. Seubert.

Polacsek, K. [WILDLIFE STOCK AND WILDLIFE DAMAGE PROBLEMS IN KOBERNAUSERWALD.] Allg. Forstzeitung 78(8): 159-162. Aug. 1967. [From Bibliog. Agr. 32(6), 1968. In German.] WR 131: 16

WILDLIFE--REPORTS OF ORGANIZATIONS & REPORTS OF HARVESTS

Maguire, H. F. RUFFED GROUSE LEADS SMALL GAME TAKE. [N.Y.] Conservationist 21(2): 10-12, 1 fig. Oct.-Nov. 1966. WR 131: 16

The 1965 harvest of 11 spp. of small game birds and mammals in N.Y. totaled more than 3.5 million. A 10-year survey shows a 48% increase in the ruffed grouse harvest; cottontail rabbit, pheasant, squirrel, and waterfowl have decreased during the same period.

Moran, Richard J. BEAVER ISLANDS EXPERIMENTAL GAME SEASON -- 1967. Mich. Dept. Conserv., Res. & Development Rept. no. 133. 4 p. 8 Jan. 1968. WR 131: 16

[Mich. Dept. Conserv., Lansing.] Extended seasons for small game and archery (deer) provided information on hunter interest and island grouse populations.

WETLANDS & WILDLIFE

Larson, Ralph W. PROBLEMS IN WILDLIFE MITIGATION RELATING TO WATER DEVELOPMENT PROJECTS. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 233-240. [1967.] WR 131: 16

[Wash. Dept. Game, Olympia.]

Moos, Louis M. FARMPONDS AS WILDLIFE HABITAT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 227-232. [1966.] WR 131: 17
[SCS, Bozeman, Mont.]

Nevers, Harold P. WATERFOWL UTILIZATION OF BEAVER IMPOUNDMENTS IN SOUTHEASTERN NEW HAMPSHIRE. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 105-120, 4 figs. 1968. WR 131: 17
[Univ. N.H., Durham.] Utilization of beaver flowages by waterfowl was studied on nine selected impoundments in southeastern New Hampshire during 1965 and 1966. Primary usage was by wood ducks (46% of the total usage) and black ducks (42% of the total usage) but other species observed included mallards, blue-winged teal, green-winged teal and hooded mergansers. Distinctly different patterns of usage by black ducks and wood ducks were observed. Black duck numbers were highest in May, June and July while wood ducks reached maximum levels in August and September. A sharp decrease in both wood duck and black duck populations was noted just before the October opening of the waterfowl hunting season. Newly-flooded impoundments were most heavily used by black ducks, wood ducks and by broods of both species. In contrast, old abandoned impoundments were used by black ducks during the breeding season but seldom by wood ducks during any part of the year. Management implications and needs for further research are discussed in relation to these findings.--From abstr.

Newsom, John D., editor. PROCEEDINGS OF THE MARSH AND ESTUARY MANAGEMENT SYMPOSIUM / LOUISIANA STATE UNIVERSITY, BATON ROUGE, LOUISIANA, JULY 19-20, 1967. La. State Univ., Div. Continuing Educ. 250 p. 1968. WR 131: 17
The following papers were presented: A description of the South Atlantic and Gulf Coast marshes and estuaries, T. L. Linton; Vegetation and its succession in marshes and estuaries along the South Atlantic and Gulf Coasts, F. M. Uhler and N. Hotchkiss; Jurisdiction and ownership of marshes and estuaries of the South Atlantic and Gulf Coasts, Edward Latimer; Estuaries: our most endangered natural habitats, Stanley A. Cain; Values of the South Atlantic and Gulf Coast marshes and estuaries to waterfowl, John J. Lynch; Values of the South Atlantic and Gulf Coast marshes and estuaries to birds other than waterfowl, Alexander Sprunt IV; Commercial values of estuarine-generated fisheries on the South Atlantic and Gulf of Mexico Coasts, James E. Sykes; Values of the South Atlantic and Gulf Coast marshes and estuaries to sport fishery resources, Lionel Walford; The value of estuaries to shrimp, C. P. Idyll, D. C. Tabb, and B. Yokel; Channelization and spoiling in Gulf Coast and South Atlantic estuaries, Charles Chapman; Dredging and filling, A. R. Marshall; Municipal and industrial wastes and the estuaries of the South Atlantic and Gulf Coasts, T. A. Wastler; Pesticides in the estuary, Philip A. Butler; Impoundments for waterfowl on South Atlantic and Gulf coastal marshes, William P. Baldwin; Burning for coastal marsh management, Clark M. Hoffpauer; Pest plant control with herbicides, John H. Steenis, Edwin W. Ball, Vernon D. Stotts, and Charles K. Rawls; Fur production on southeastern coastal marshes, Kenneth A. Wilson; Managing impounded salt marshes for mosquito control and estuarine resource conservation, Maurice W. Provost; Farming the salt marshes, G. Robert Lunz; Weirs, plugs and artificial potholes for the management of wildlife in coastal marshes, Robert H. Chabreck; Weirs, potholes and fishery management, William H. Herke; Planting, disking, mowing, and grazing, William W. Neely; Common faults of management, John L. Sincock; Research needs in estuarine areas of the Gulf Coast, Clarence Cottam; and Symposium summary, Laurence R. Jahn.

Olney, P. J. S., compiler. PROJECT MAR. LIST OF EUROPEAN AND NORTH AFRICAN WETLANDS OF INTERNATIONAL IMPORTANCE. IUCN Publ. New Ser. no. 5. 102 p. 1965. WR 131: 17
"The geographical range of the list covers all European countries, except Albania and parts of the USSR from where not enough material was available. Outside Europe, the Maghrebian countries, Morocco, Algeria and Tunisia, were included and, with a preliminary inventory, the Asiatic part of Turkey. For practical reasons, the number of wetlands listed had to be restricted to about

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200 for Europe without the USSR, which means about one per 28,000 sq/km (one per 10,600 sq. miles). To include all wetlands in need of protection would have increased the list to a level which would no longer allow efficient action by the international bodies."

Spencer, Howard E., Jr. MAN-MADE MARSHES FOR MAINE WATERFOWL. Maine Game Div. Bull. no. 9. viii + 79 p., 26 figs. June 1963. WR 131: 18
[Maine Dept. Inland Fisheries & Game, Augusta.] Eighty-four marshes were investigated during a 3-year period to determine their physical characteristics and waterfowl production yields. Coastal marshes were the most productive on a per acre basis. Man-made marshes were more successful than natural marshes. Seven spp. of game ducks nested on the artificial marshes; 60% of these were black ducks. The relative attributes of various-sized marshes and criteria for their appraisal are discussed.--From abstr.

Vespremeanu, E. E. LE LAC CERNAGHIOL, IMPORTANT POINT DE NIDIFICATION DES OISEAUX AQUATIQUES DANS LA DOBROUDJA. [CERNAGHIOL LAKE, IMPORTANT NESTING LOCALITY FOR AQUATIC BIRDS IN THE DOBROGEA (ROMANIA).] Alauda 35: 33-48. 1967. [From Ibis 110(1), 1968. In French.] WR 131: 18
Description of a small steppe lake containing mixed colonies of four species of grebes, eight herons, spoonbills and ibises, seven ducks and geese, besides a pair of Larus minutus well to the south of the known range.

RANGELAND & WILDLIFE

Cummings, Melvin S. A COOPERATIVE APPROACH TO RANGE REHABILITATION FOR LIVESTOCK AND GAME. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 155-157. [1964.] WR 131: 18
[Oreg. State Game Comm., Portland.] Antelope, deer, sage grouse, and chukar partridge.

Henderson, Reed S. RANGE REHABILITATION. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 151-155. [1964.] WR 131: 18
[Utah Dept. Fish & Game, Cedar City.] For deer.

Lamb, Samuel H. GAME RANGE REVEGETATION IN NEW MEXICO. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 194-202. [1966.] WR 131: 18
[N. Mex. Game & Fish Dept., Santa Fe.]

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

Sears, E. W., and John J. Whalen. A METHOD OF FOREST INVENTORY--ITS APPLICATION TO MULTIPLE-USE PLANNING. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 1-9, 1 fig. 1968. WR 131: 18
[N.Y. Conserv. Dept., Albany.] Abstract: Based upon experience gained during the past ten years, and with the application of modern methods and equipment, a system of forest inventory, which is both practical and economical, has been developed. This article briefly describes the method and its application to timber management, game management, and to recreational management.

Stein, William I. MORE NATURAL REGENERATION BY CONTROLLING SEED-EATING RODENTS. U.S. Forest Serv. Res. Note PNW-12. 10 p., 1 fig. Apr. 1964. WR 131: 18
Two similar study areas consisting of ponderosa and sugar pine were censused for evidence of rodents. One study area was protected from rodents by using wheat treated with sodium fluoroacetate (1080). Nearly four times more seedlings were found on the protected study area than on the unprotected one.

STRIPPED LAND & MISCELLANEOUS HABITATS

Vogel, W. G., and W. A. Berg. GRASSES AND LEGUMES FOR COVER ON ACID STRIP-MINE SPOILS. J. Soil & Water Conserv. 23(3): 89-91, 3 figs. May-June 1968. WR 131: 19

[NE Forest Expt. Sta., Berea, Ky.] "Weeping lovegrass provides initial cover on extremely acid spoils faster than any other perennial grass or legume."

Young, W. C. ECOLOGY OF ROADSIDE TREATMENT. J. Soil & Water Conserv. 23(2): 47-50, illus. Mar.-Apr. 1968. WR 131: 19

[South Regional Tech. Serv. Center, Fort Worth, Texas.] Roadside treatment with vegetation should comply with natural order of succession and should follow the basic ecology of the location.

CONTROL OF VEGETATION WITH HERBICIDES, ETC.

Christensen, Donald R., Stephen B. Monsen, and A. Perry Plummer. RESPONSE OF SEEDED AND NATIVE PLANTS SIX AND SEVEN YEARS AFTER ERADICATION OF UTAH JUNIPER BY CABLING AND HULA DOZING FOLLOWED BY PIPE HARROWING AS AN AFTERTREATMENT ON PORTIONS OF THE MAJOR TREATMENTS. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 162-180. [1966.] WR 131: 19

[Utah Fish & Game Dept., Ephraim.]

MacConnell, William P. HABITAT MANIPULATION WITH MODERN HERBICIDES. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 11-23. 1968. WR 131: 19

[Univ. Mass., Amherst.] Abstract: Forest vegetation may be economically manipulated with modern herbicides to increase wood, water, or game production. Both aerial and ground spraying techniques may be employed to control the composition of forest stands, and soil sterilents may also be used with the forest stand rather than individual trees as the target. Individual trees may be treated in various ways with many different chemicals to eliminate them from forest stands. Game managers as well as foresters should be using these modern tools to manipulate the forest to meet the specific needs of the game or the needs of hunters who pursue it. This paper describes ten years of research using chemicals to alter the forest for wood or water production or to ameliorate it for recreation, especially skiing.

Nelson, Noland F., and Reuben H. Dietz. CATTAIL CONTROL METHODS IN UTAH. Utah State Dept. Fish & Game Publ. no. 66-2. 31 p., 16 figs. 1966. WR 131: 19

[Utah State Dept. Fish & Game, Salt Lake City.] Cutting, mowing, crushing, chemical control (Dalpon), and explosives are discussed. All methods are effective if the damaged stem is kept submerged to suffocate the root stock.

MAMMALS--GENERAL

Bigalke, E. H. NOTES ON THE PLACE OF DOMESTIC AND INDIGENOUS ANIMALS IN CAPE NGUNI LIFE. Ann. Cape Provincial Museums (Nat. Hist.) 6(1): 1-16, 6 pls. 15 Dec. 1966. WR 131: 19

[East London Museum, East London, South Africa.]

Cloudsley-Thompson, J. L. BIOMETEOROLOGICAL PROBLEMS IN THE ECOLOGY OF ANIMALS IN THE TROPICS. Internat. J. Biometeorol. (Amsterdam) 10(3): 253-271. Dec. 1966. [From J. Mammal. 49(1), 1968.] WR 131: 19

Hitchins, P. M. RECORDS OF PLANTS EATEN BY MAMMALS IN THE HLUHLUWE GAME RESERVE, ZULULAND. Lammergeyer 8: 31-39. Mar. 1968. WR 131: 19

Results of stomach analysis and field observations of vervet monkey, samango monkey, baboon, black rhinoceros, square-lipped rhinoceros, zebra, warthog, wildebeest, impala, giraffe, grey duiker, nyala, bushbuck, kudu, and buffalo are classified as to grasses, sedges, other herbs, shrubs and climbers, and trees.

Howard, Walter E. INTERACTION OF BEHAVIOR, ECOLOGY, AND GENETICS OF INTRODUCED MAMMALS. Proc. 1st IUBS Symposium on General Biol. p. 461-484. 1965. WR 131: 20

[Univ. Calif., Davis.] "Mammalian densities are determined primarily by the suitability of the habitat and the self-limitations owing to interspecific stress factors (psychological, competition for food or mates, territoriality, weather, disease, or other vicissitudes of life); and interspecific competition ...often is only of minor significance."

Long, Charles A., and Theodore Frank. MORPHOMETRIC VARIATION AND FUNCTION IN THE BACULUM, WITH COMMENTS ON CORRELATION OF PARTS. J. Mammal. 49(1): 32-43, 2 figs. Feb. 1968. WR 131: 20

[Wis. State Univ., Stevens Point.]

Maher, William J. PREDATION BY WEASELS ON A WINTER POPULATION OF LEMMINGS, BANKS ISLAND, NORTHWEST TERRITORIES. Canadian Field-Nat. 81(4): 248-250. Oct.-Dec. 1967. WR 131: 20

[Univ. Saskatchewan, Saskatoon.] A moderate lemming population on Banks Island, N.W.T., was almost exterminated by ermine (Mustela erminea) in the winter of 1962-63. The observation is considered significant in assessing the role of carnivores in the lemming cycle.

Spencer, Albert W., and Harold W. Steinhoff. AN EXPLANATION OF GEOGRAPHIC VARIATION IN LITTER SIZE. J. Mammal. 49(2): 281-286, 1 fig. May 1968. WR 131: 20

[Fort Lewis Coll., Durango, Colo.] Abstract: Our explanation of the latitudinal and altitudinal variation in litter sizes of small mammals invokes the effect of length of season and parental mortality related to reproduction. It may be assumed that a portion of the maternal mortality rate varies directly as the size of litter produced. Short seasons limit the maximum number of times a female can reproduce in her lifetime and give an advantage to phenotypes producing large litters. Long seasons favor producers of small litters. The contribution to the total rate of increase of the litters produced in the additional time afforded by long seasons is greater for producers of small litters because a larger proportion of parents of small litters survive to produce throughout the periods. The increment provided is sufficient to overcome the initial advantage of parents producing large numbers of young in their first litters.

Wilson, Vivian J. WEIGHTS OF SOME MAMMALS FROM EASTERN ZAMBIA. Arnoldia 3(32): 1-20. 30 Mar. 1968. WR 131: 20

[Dept. Natl. Parks & Wild Life Mgmt., Rhodesia.] Each of 54 spp. is discussed separately and weights by sexes giving minimum, maximum and mean weights are tabulated.

MAMMALS--TECHNIQUES

Anderson, Sydney. A NEW CRANIOMETER AND SUGGESTIONS FOR CRANIOMETRY. J. Mammal. 49(2): 221-228, 3 figs. May 1968. WR 131: 20

[Am. Museum Nat. Hist., New York, N.Y.] Abstract: A craniometer including a mechanical stage on a dissecting microscope is described. Some prior methods, current problems, and possible future developments in methods of measurement are noted.

Andrzejewski, Roman, and Janina Głogowska. THE INFLUENCE OF THE LAY-OUT OF TRAPS AND LENGTH OF TIME FOR WHICH THEY REMAIN SET ON THE DISTRIBUTION OF CAPTURES OF SMALL RODENTS. Ekologia Polska--Ser. A 10(10): 285-293, 3 figs. 1962. In English with Polish summ. WR 131: 20

Andrzejewski, Roman, and Henryka Wroclawek. METAL CYLINDER AS A LIVE TRAP WITH A BAIT. Acta Theriol. 6(11): 297-300, 1 fig. 28 Feb. 1963. In English. WR 131: 21

Iverson, Stuart L., and Robert W. Seabloom. A RAPID METHOD FOR CLEANING SMALL MAMMAL SKULLS. Proc. N. Dak. Acad. Sci. 17: 101-103, 1 fig. 1963. WR 131: 21

Tissues are softened by placing skulls in a dilute ammonium hydroxide solution; skulls are then boiled. An air-water jet utilizes hot water and compressed air to remove the softened tissues.

Kostelecka-Myrcha, Alina, and Andrzej Myrcha. EFFECT OF THE KIND OF INDICATOR ON THE RESULTS OF INVESTIGATIONS OF THE RATE OF PASSAGE OF FOODSTUFFS THROUGH THE ALIMENTARY TRACT. Acta Theriol. 10(17): 229-232, 1 fig. 30 Sept. 1965. In English with Polish summ. WR 131: 21

Abstract: Experiments were made on 11 captive N. fodiens (Pennant, 1771). The method of stained food was used (Castle, 1956). Statistically significant differences were found between excretion time of stained wheat and T. molitor larvae in N. fodiens fed on these larvae. No stained food other than the kind of food eaten by an animal can be used as indicator in investigations of the rate of passage of foodstuffs.

Miller, Donald H., and Lowell L. Getz. A METHOD TO REDUCE WINTER TRAP MORTALITY. J. Mammal. 49(1): 147. Feb. 1968. WR 131: 21

[Lyndon State Coll., Lyndonville, Vt.] A 5-cm cotton insulation-wrapped plastic tube provided shelter for Clethrionomys gapperi and was effective in reducing winter mortality.

Olszewski, Jerzy, and Stanisław Skoczeń. APPLICATION OF AN ELECTRIC ANEMOMETER FOR INVESTIGATING THE VENTILATION OF MAMMALIAN BURROWS. Acta Theriol. 5(20): 293-294, 2 figs. 30 Dec. 1961. In English. WR 131: 21

Pienaar, U. de V. THE FIELD-IMMOBILIZATION AND CAPTURE OF HIPPOPOTAMI (HIPPOPOTAMUS AMPHIBIUS LINNAEUS) IN THEIR AQUATIC ELEMENT. Koedoe no. 10. p. 149-157, 9 figs. 1967. WR 131: 21

[Kruger Natl. Park, Skukuza, South Africa.] Six hippopotami were successfully immobilized and captured in water by using a mixture of Sernylam (0.16 to 0.25 mg/lb) and Acetylpromazine maleate (0.05 to 0.11 mg/lb) administered by crossbow-propelled darts. A road grader was used to retrieve the drugged animals from the water.

Pienaar, U. de V. OPERATION "KHOMANDLOPFU". Koedoe no. 10. p. 158-164, 10 figs. 1967. WR 131: 21

[Kruger Natl. Park, Skukuza, South Africa.] An immobilizing mixture of 1.0 mg M-99 and 7 mg Acetylpromazine, and an antidote M-285 were used to capture 27 young African elephants without loss. The elephants, ranging in age from 12 months to 56 months, were shot with darts from a helicopter.

Raczyński, Jan. CONVENIENT TAXONOMIC FEATURES OF SKULLS OF CERTAIN MAMMALS FROM OWL PELLETS. Acta Theriol. 5(20): 295-297, 3 figs. 30 Dec. 1961. In English. WR 131: 21

"Insectivora and Rodentia."

Sergeant, D. E. AGE DETERMINATION OF LAND MAMMALS FROM ANNULI. Z. Säugetierk. 32(5): 297-300. Oct. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 21

MAMMALS--FAUNAS & MANUALS

Banfield, A. W. F. NOTES ON THE MAMMALS OF PELEE ISLAND, ONTARIO. Natl. Museum Canada Bull. no. 183. p. 118-122. 1962. WR 131: 22
[Natl. Museum Canada, Ottawa, Ontario.] Annotated list of 14 spp., only one of which seems to have naturally colonized the island.

Barbour, Roger W., and Sjarief Hardjasamita. A PRELIMINARY LIST OF THE MAMMALS OF ROBINSON FOREST, BREATHITT COUNTY, KENTUCKY. Trans. Ky. Acad. Sci. 27(3-4): 85-89. 1966. [From J. Mammal. 49(2), 1968.] WR 131: 22

Bauer, Kurt, Franz Krapp, and Friederike Spitzenberger. SÄUGETIERE AUS VORARLBERG. [MAMMALS OF VORARLBERG (WESTERN AUSTRIA).] Ann. Naturhist. Museums Wien 70: 55-71, 1 fig. 1966 [1967]. In German. WR 131: 22

Bradshaw, W. N. MAMMALS RECORDED FROM THE TERRA ALTA BIOLOGICAL STATION. Proc. W. Va. Acad. Sci. 37: 18-22. 1965. [From J. Mammal. 49(1), 1968.] WR 131: 22

Brosset, A., and H. Heim de Balsac. LES MICROMAMMIFÈRES DU VERCORS. [THE SMALL MAMMALS OF VERCORS.] Mammalia 31(3): 325-346. Sept. 1967. [From J. Mammal. 49(2), 1968. In French with English summ.] WR 131: 22

Burton, John A. NOTES ON MAMMALS IN THE LONDON AREA FOR 1965. London Nat. 46: 40-43. Aug. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 22

Dalquest, Walter W. MAMMALS OF NORTH-CENTRAL TEXAS. Southwestern Nat. 13 (1): 13-21. 28 May 1968. WR 131: 22
[Midwestern Univ., Wichita Falls, Texas.] Abstract: North-central Texas includes five counties along the central part of the northern border of Texas. Of the 66 kinds of mammals recorded, 59 are native species and more than a third of these find their eastern or western limits of range in the area. Eastern woodland forms occupy the eastern part of the area, and Great Plains kinds the western. The Red River permits migration of both eastern and western species. Some westward immigration of eastern mammals has occurred in recent years.

Halloran, Arthur F., and Bryan P. Glass. ADDITIONAL MAMMAL NOTES FROM THE WICHITA MOUNTAINS REGION OF OKLAHOMA. Proc. Okla. Acad. Sci. 1963 44: 56-58. 1964. WR 131: 22
[Wichita Mountains Wildl. Refuge, Cache, Okla.] Notes on nine spp.

Jones, J. Knox, Jr., and Timothy E. Lawlor. MAMMALS FROM ISLA COZUMEL, MEXICO, WITH DESCRIPTION OF A NEW SPECIES OF HARVEST MOUSE. Univ. Kans. Publ., Museum Nat. Hist. 16(3): 411-419, 1 fig. 13 Apr. 1965. WR 131: 22
[Museum Nat. Hist., Univ. Kans., Lawrence.] Annotated list of 16 spp.

Kurup, G. U. MAMMALS OF ASSAM AND ADJOINING AREAS: I. AN ANALYTICAL STUDY. Proc. Zool. Soc. (Calcutta) 19(1): 1-21. Apr. 1966. [From J. Mammal. 49(2), 1968.] WR 131: 22

Lay, Douglas M. A STUDY OF THE MAMMALS OF IRAN RESULTING FROM THE STREET EXPEDITION OF 1962-63. Fieldiana: Zool. 54: 1-282. 31 Oct. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 22

Meylan, A. LES PETITS MAMMIFÈRES TERRESTRES DU VALAIS CENTRAL (SUISSE). [THE SMALL TERRESTRIAL MAMMALS OF THE VALAIS CANTON (SWITZERLAND).] Mammalia 31(2): 225-245. June 1967. [From J. Mammal. 49(1), 1968. In French with English summ.] WR 131: 22

Scott, D. R. NOTES ON ESSEX MAMMALS, 1965-66. J. Essex Field Club 32(1): 65-70. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 22

Wodzicki, K., and J. E. C. Flux. GUIDE TO INTRODUCED WALLABIES IN NEW ZEALAND. Tuatara 15(2): 47-59, 3 figs. July 1967. WR 131: 23
[DSIR, Lower Hutt, New Zealand.] Account of 6 spp. Macropus introduced from Australia approximately 100 years ago.--From summ.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Gold, K. A. J. SMALL MAMMAL TRAPPING AT BOOKHAM COMMON. London Nat. 46: 126-129. Aug. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 23

Graham, P. AN ANALYSIS OF THE NUMBERS OF GAME AND OTHER LARGE MAMMALS KILLED IN TSETSE FLY CONTROL OPERATIONS IN NORTHERN BECHUANALAND 1942 TO 1963. Mammalia 31(2): 186-204. June 1967. [From J. Mammal. 49(1), 1968.] WR 131: 23

Guthrie, R. D. PALEOECOLOGY OF THE LARGE-MAMMAL COMMUNITY IN INTERIOR ALASKA DURING THE LATE PLEISTOCENE. Am. Midland Nat. 79(2): 346-363, 5 figs. Apr. 1968. WR 131: 23
[Univ. Alaska, College.] This study of the paleoecology of four fossil assemblages of large mammals from the late Pleistocene sediments near Fairbanks, Alaska, emphasized the structure, composition, habitat, and the pattern of subsequent extinction of the community.--From abstr.

Ozoga, John J., and Louis J. Verme. SMALL MAMMALS OF CONIFER SWAMP DEERYARDS IN NORTHERN MICHIGAN. Paps. Mich. Acad. Sci., Arts & Letters 53: 37-49, 3 figs. 1968. WR 131: 23
[Mich. Dept. Conserv., Lansing.] This "study clearly points out that masked shrews, red-backed voles, woodland deer mice, and short-tail shrews are the dominant small mammals of coniferous swamps in this northern Michigan region. However, their populations periodically undergo tremendous changes, from peak abundance to absolute scarcity. The factors causing these dramatic shifts in density are poorly understood, but very likely involve overwinter survival, breeding success, food supplies, interspecific competition, and so on, either singly or in combination."

Petrides, George A., and Wendell G. Swank. POPULATION DENSITIES AND THE RANGE-CARRYING CAPACITY FOR LARGE MAMMALS IN QUEEN ELIZABETH NATIONAL PARK, UGANDA. Zool. Africana 1(1): 209-225. 1965. WR 131: 23
[Mich. State Univ., East Lansing.] Mammal populations and biomasses were determined per square mile on each of four census areas, and the probable maximum population biomass which could be supported permanently was calculated for the area nearest in balance with its animal inhabitants. The computed carrying capacity of the Themeda grasslands and its 9 spp. of ungulates was 100,000 lbs. biomass per sq. mile.--From summ.

Platt, Austin P. DIFFERENTIAL TRAP MORTALITY AS A MEASURE OF STRESS DURING TIMES OF POPULATION INCREASE AND DECREASE. J. Mammal. 49(2): 331-335, 1 fig. May 1968. WR 131: 23
[Wesleyan Univ., Middletown, Conn.]

Spitz, F. ÉTUDE DES BIOTOPES DE CIRCULATION DE QUELQUES ESPÈCES DE MICROMAMMIFERES PAR LA MÉTHODE DU CARRE DE PIEGEAGE. [STUDIES OF TRAFFIC BIOTOPES OF SEVERAL SPECIES OF SMALL MAMMALS BY QUADRANT TRAPPING.] Mammalia 29(3): 390-399, 3 figs. Sept. 1965. In French with English summ. WR 131: 23
[Inst. Natl. Recherche Agronomique, Jouy-en-Josas (S.-et-O.), France.] "Microtus arvalis and M. agrestis."

MAMMALS--PARASITES & DISEASES

Bergner, John Franklin, Jr. THE PARASITES (WITH EMPHASIS ON THE FILARIA, MACACANEMA FORMOSANA) AND ECOLOGY OF THE TAIWAN MONKEY, MACACA CYCLOPIS. Ph.D. thesis, Univ. Md. 177 p. 1967. From Dissertation Abstr. 28(9B), 1968. WR 131: 24

Geographical distribution and foci of the filaria, suspected intermediate hosts, and development of the filarial larvae are discussed.

Byrd, Elon E., Annie K. Prestwood, Forest E. Kellog, and Richard W. Heard. NEW HOSTS AND LOCALITY RECORDS FOR THE LARGE LIVER FLUKE, ATHESMIA HETEROLECITHODES (BRAUN, 1899) LOOSS, 1899 (DICROCOELIIDAE) OF BIRDS AND MAMMALS. J. Parasitol. 53(5): 1116-1117. Oct. 1967. WR 131: 24

[Univ. Ga., Athens.]

Cowx, N. C. SOME ASPECTS OF THE ECOLOGY AND BIOLOGY OF SOME SMALL MAMMAL FLEAS FROM YORKSHIRE. J. Biol. Educ. 1(1): 75-78. Mar. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 24

Lewis, J. W. STUDIES ON THE HELMINTH PARASITES OF VOLES AND SHREWS FROM WALES. J. Zool. (London) 154(3): 313-331. Mar. 1968. WR 131: 24

[Univ. London, Englefield Green, Surrey, England.] The incidence and degree of infestation of bank vole, Clethrionomys glareolus, the Skomer vole, C. skomerensis, the common shrew, Sorex araneus and the pygmy shrew, S. minutus have been studied from a rough grassland and woodland area, Aberystwyth and from Skomer Island in Wales. In addition, small numbers of the short-tailed vole, Microtus agrestis and the water shrew, Neomys fodiens were examined for helminth parasites, when they became available.--From abstr.

Mykytowycz, R. COCCIDIA IN WILD POPULATIONS OF THE RED KANGAROO, MEGALEIA RUFA (DESMAREST), AND THE GREY KANGAROO, MACROPUS CANGURU (MÜLLER). Parasitology 54: 105-115 + 1 pl. 1964. WR 131: 24

[CSIRO, Canberra, Australia.] Incidence of infection is more prevalent among grey kangaroos than red; infection also seems to be related to age of the animal and the annual rainfall of the area. Descriptions of 7 new species of Eimeria encountered during the study are given.

Rausch, Robert L. ON THE ECOLOGY AND DISTRIBUTION OF ECHINOCOCCUS SPP. (CESTODA: TAENIIDAE), AND CHARACTERISTICS OF THEIR DEVELOPMENT IN THE INTERMEDIATE HOST. Ann. Parasitol. Humaine Comp. (Paris) 42(1): 19-63. Jan.-Feb. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 24

"Carnivora."

Uchikawa, Kimito. [AN ECOLOGICAL STUDY ON THE FLEAS IN THE YATSUGATAKE RANGE: I. ON THE FLEAS FOUND ON THE SMALL MAMMALS TRAPPED IN THE SUBALPINE FOREST.] Japanese J. Ecol. 17(2): 43-49. Apr. 1967. [From J. Mammal. 49(2), 1968. In Japanese with English summ.] WR 131: 24

Wahl, Eric. ÉTUDE PARASITO-ÉCOLOGIQUE DES PETITS MAMMIFÈRES (INSECTIVORES ET RONGEURS) DU VAL DE L'ALLONDON (GENÈVE). [PARASITO-ECOLOGICAL STUDY OF SMALL MAMMALS (INSECTIVORA AND RODENTIA) OF THE ALLONDON VALLEY (GENEVA).] Rev. Suisse Zool. 74(2): 129-188. May 1967. [From J. Mammal. 49(1), 1968. In French with German and English summ.] WR 131: 24

SHREWS, MOLES, BATS

Arata, Andrew A. DISCREPANCY BETWEEN "DRY" AND "FRESH" FOREARM MEASUREMENTS IN BATS. J. Mammal. 49(1): 155-156. Feb. 1968. WR 131: 24

[Tulane Univ., New Orleans, La.] "The average forearm shrinkage was 2.6%, unevenly distributed among the various sizes and species of bats."

Ash, Lawrence R. ANGIOSTRONGYLUS MICHIGANENSIS SP. N. (NEMATODA: METASTRONGYLOIDEA), A LUNGWORM OCCURRING IN THE SHREW, SOREX CINEREUS CINEREUS, IN MICHIGAN. J. Parasitol. 53(3): 625-629, 9 figs. June 1967. WR 131: 25
[c/o South Pacific Comm., P.O. Box 9, Noumea, New Caledonia.]

Aubert, Alain. OBSERVATIONS SUR L'ACCOUPLEMENT DES CHIROPTERES. [OBSERVATIONS UPON THE BREEDING OF CHIROPTERA.] Acta Theriol. 6(11): 300-301. 28 Feb. 1963. In French. WR 131: 25
"Rhinolophus ferrumequinum and Pipistrellus pipistrellus."

Baker, W. Wilson, Shirley G. Marshall, and Virginia B. Baker. AUTUMN FAT DEPOSITION IN THE EVENING BAT (NYCTICEIUS HUMERALIS). J. Mammal. 49(2): 314-317, 2 figs. May 1968. WR 131: 25
[Tall Timbers Res. Sta., Rt. 1, Box 160, Tallahassee, Fla.] "The amount of high energy fat deposited suggests that these bats could make long migratory flights."

Borowski, Stanisław. MOULT OF SHREWS (SOREX L.) UNDER LABORATORY CONDITIONS. Acta Theriol. 8(8): 125-135, 1 fig. 15 Oct. 1964. In English with Polish summ. WR 131: 25

Cain, George D. HELMINTH PARASITES OF BATS FROM CARLSBAD CAVERNS, NEW MEXICO. J. Parasitol. 52(2): 351-357, 8 figs. Apr. 1966. WR 131: 25
[Purdue Univ., Lafayette, Ind.]

Constantine, Denny G., Ernest S. Tierkel, Marlin D. Kleckner, and Douglas M. Hawkins. RABIES IN NEW MEXICO CAVERN BATS. Public Health Repts. 83(4): 303-316, illus. Apr. 1968. WR 131: 25
[Communicable Disease Center Activities, Naval Biol. Lab., Oakland, Calif.] Review paper. An epizootic of deaths of Tadarida brasiliensis mexicana at Carlsbad Cavern, N. Mex., in Aug. 1955 appeared to be caused by rabies, stimulating studies to define the extent of the disease, its origin, and its public health significance. The deaths of the Mexican free-tailed bats were associated with migration during inclement weather and unfavorably cool temperatures in the cavern. The bats appear to be a potential source of rabies infection for man and Carnivora, both by direct contact and by airborne rabies-virus transmission in corridors crowded with flying bats.

Crowcroft, Peter. NOTE ON THE SEXUAL MATURATION OF SHREWS (SOREX ARANEUS LINNAEUS, 1758) IN CAPTIVITY. Acta Theriol. 8(5): 89-93, 1 pl. 15 Oct. 1964. In English with Polish summ. WR 131: 25

Dapson, Richard W. REPRODUCTION AND AGE STRUCTURE IN A POPULATION OF SHORT-TAILED SHREWS, BLARINA BREVICAUDA. J. Mammal. 49(2): 205-214, 4 figs. May 1968. WR 131: 25
[Univ. Mich. Flint Coll., Flint.] Abstract: Age was found to vary with tooth wear in a curvilinear, not rectilinear, relationship. The apparent rapid elimination of adults from the population after the spring breeding season was due to a constant, age-independent mortality rate. Whereas most reproductive activity occurred in spring, scattered incidents of breeding were found throughout the year. Both sexes are capable of reproducing during their first year, and may breed 1 to 2 months after birth.

Davis, Russell. WING DEFECTS IN A POPULATION OF PALLID BATS. Am. Midland Nat. 79(2): 388-395, 2 figs. Apr. 1968. WR 131: 25
[Univ. Ariz., Tucson.] "Antrozous pallidus."

Davis, Wayne H., Roger W. Barbour, and Marion D. Hassell. COLONIAL BEHAVIOR OF EPTESICUS FUSCUS. J. Mammal. 49(1): 44-50, 1 fig. Feb. 1968. WR 131: 26
[Univ. Ky., Lexington.] Abstract: Big brown bats, Eptesicus fuscus, were studied at maternity colonies in buildings in Kentucky. Bats arrived at the colonies in May, and colonies contained few adult males before the young were weaned. Young were born in early June. Mothers left even the youngest babies behind during feeding flights, and mothers retrieved their fallen babies from the floor and recognized their own. Young bats grew rapidly; growth curves are presented. After parturition mother bats fed close by and returned soon to their babies; as the young matured the mothers stayed away longer. When 3 weeks old the young could fly, and by mid-June mothers and young were using a night roost. Adults filled their stomachs in about an hour of feeding. Big brown bats were not tolerant of heat, and left a roosting spot at temperatures above 92°-95°F. This is a rather sedentary species; most movements recorded were of a few miles or less.

Davis, Wayne H., and Charles L. Rippy. DISTRIBUTION OF MYOTIS LUCIFUGUS AND MYOTIS AUSTRORIPARIUS IN THE SOUTHEASTERN UNITED STATES. J. Mammal. 49(1): 113-117, 2 figs. Feb. 1968. WR 131: 26
[Univ. Ky., Lexington.]

Dryden, G. L. GROWTH AND DEVELOPMENT OF SUNCUS MURINUS IN CAPTIVITY ON GUAM. J. Mammal. 49(1): 51-62, 4 figs. Feb. 1968. WR 131: 26
[Slippery Rock State Coll., Slippery Rock, Pa.]

Dunnigan, Patrick B., and John H. Fitch. SEASONAL MOVEMENTS AND POPULATION FLUCTUATIONS OF THE CAVE BAT (MYOTIS VELIFER) IN SOUTH-CENTRAL KANSAS. Trans. Kans. Acad. Sci. 70(2): 210-218. Summer 1967. [From J. Mammal. 49(2), 1968.] WR 131: 26

Forman, G. Lawrence. COMPARATIVE GROSS MORPHOLOGY OF SPERMATOZOA OF TWO FAMILIES OF NORTH AMERICAN BATS. Univ. Kans. Sci. Bull. 47(16): 901-928, 30 figs. 26 Mar. 1968. WR 131: 26
[Univ. Kans., Lawrence.] Abstract: Spermatozoa of 24 species of North American bats representing two families were studied and compared. All genera and most species examined of the family Vespertilionidae have morphologically distinct sperm, whereas members of the family Phyllostomatidae were less distinctive at the generic and specific levels. Methods of preparation and observation of spermatozoa are described, spermatozoa of included species illustrated, and phylogenetic relationships of bats discussed.

Gebczyńska, Zofia, and Marek Gebczyński. OXYGEN CONSUMPTION IN TWO SPECIES OF WATER-SHREWS. Acta Theriol. 10(13): 209-214, 2 figs. 30 Sept. 1965. In English with Polish summ. WR 131: 26
"Neomys anomalus and N. fodiens."

Greenhall, Arthur M. SAPUCAIA NUT DISPERSAL BY GREATER SPEAR-NOSED BATS IN TRINIDAD. Caribbean J. Sci. 5(3-4): 167-171, 3 figs. Sept.-Dec. 1965. WR 131: 26
[FAO/United Nations, Mexico City, Mexico.] Phyllostomus h. hastatus was observed in Trinidad feeding upon the fleshy nut attachment within the fruit of the sapucaia tree, Lecythis zabucajo. A synzooic relationship may exist between the bat and the tree.

Greenhall, Arthur M. NOTES ON THE BEHAVIOR OF THE FALSE VAMPIRE BAT. J. Mammal. 49(2): 337-340, 1 fig. May 1968. WR 131: 26
[FAO/United Nations, Mexico City, Mexico.] "Vampyrum spectrum."

Grose, Elizabeth, and J. R. Tamsitt. PARACOCCIDIOIDES BRASILIENSIS RECOVERED FROM THE INTESTINAL TRACT OF THREE BATS (ARTIBEUS LITURATUS) IN COLOMBIA, S.A. Sabouraudia 4(2): 124-125. 1965. In English with German summ. WR 131: 26
[Univ. de los Andes, Bogotá, Colombia.] Of 243 bats belonging to 6 spp. from west central Colombia, 3 individuals of Artibeus lituratus harbored Paracoccidioides brasiliensis.

Hooper, Emmet T., and James H. Brown. FORAGING AND BREEDING IN TWO SYMPATRIC SPECIES OF NEOTROPICAL BATS, GENUS NOCTILIO. J. Mammal. 49(2): 310-312. May 1968. WR 131: 27
[Univ. Mich., Ann Arbor.] "Noctilio leporinus and N. labialis."

Hughes, Steven E. TEMPERATURE OF THE BAT, PLECOTUS TOWNSENDII, DURING AROUSAL. J. Mammal. 49(1): 140-142, 1 fig. Feb. 1968. WR 131: 27
[Western Wash. State Coll., Bellingham.]

Humphrey, Stephen R., and James B. Cope. RECORDS OF MIGRATION OF THE EVENING BAT, NYCTICEIUS HUMERALIS. J. Mammal. 49(2): 329. May 1968. WR 131: 27
[Okla. State Univ., Stillwater.]

Jones, Clyde, and John Pagels. NOTES ON A POPULATION OF PIPISTRELLUS SUBFLAVUS IN SOUTHERN LOUISIANA. J. Mammal. 49(1): 134-139, 3 figs. Feb. 1968. WR 131: 27
[Tulane Univ., New Orleans, La.] Comparisons are made with bat populations from other regions.

Jones, J. Knox, Jr., and Hugh H. Genoways. ANNOTATED CHECKLIST OF BATS FROM SOUTH DAKOTA. Trans. Kans. Acad. Sci. 70(2): 184-196. 22 Sept. 1967. WR 131: 27
Annotated list of 11 spp., two of which are represented in S. Dak. by two sspp.

Jones, J. Knox, Jr., James Dale Smith, and Ticul Alvarez. NOTES ON BATS FROM THE CAPE REGION OF BAJA CALIFORNIA. Trans. San Diego Soc. Nat. Hist. 14 (4): 53-56. 4 Aug. 1965. WR 131: 27
[Museum Nat. Hist., Univ. Kans., Lawrence.] Annotated list of 11 spp.

Judin, B. S. [THE GEOGRAPHICAL DISTRIBUTION AND INTERSPECIFIC TAXONOMY OF SOREX MINUTISSIMUS ZIMMERMANN, 1780 IN WEST SIBERIA.] Acta Theriol. 8(10): 167-179, 1 fig. + 3 pls. 15 Oct. 1964. In Russian with Polish and English summ. WR 131: 27

Kaikusalo, Asko. BEOBACHTUNGEN AN GEKÄFIGTEN KNIRPSSPITZMÄUSEN, SOREX MINUTISSIMUS ZIMMERMANN, 1780. [OBSERVATIONS OF A CAPTIVE SHREW SOREX MINUTISSIMUS ZIMMERMANN 1780.] Z. Säugetierk. 32(5): 301-306. Oct. 1967. [From J. Mammal. 49(2), 1968. In German with English summ.] WR 131: 27

Machado-Allison, C. E. THE SYSTEMATIC POSITION OF THE BATS DESMODUS AND CHILONYCTERIS, BASED ON HOST-PARASITE RELATIONSHIPS (MAMMALIA; CHIROPTERA). Proc. Biol. Soc. Wash. 80: 223-226. 1 Dec. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 27

Martin, Robert L. BAT TRANSMITTED RABIES. Iowa State Univ. Vet. 24(2): 79-82. 1961-1962. WR 131: 27
Brief history of the detection of bat rabies.

McKean, John L., and L. S. Hall. DISTRIBUTION OF THE LARGE-FOOTED MYOTIS, MYOTIS ADVERSUS, IN AUSTRALIA. Victorian Nat. 82(6): 164-168, 1 fig. Oct. 1965. WR 131: 27
[CSIRO, Canberra, Australia.] "M. adversus is widely distributed but known from very few localities."

McKean, John L., and Elery Hamilton-Smith. LITTER SIZE AND MATERNITY SITES IN AUSTRALIAN BATS (CHIROPTERA). Victorian Nat. (Australia) 84(7): 203-206. July 1967. [From J. Mammal. 49(1), 1968.] WR 131: 27

Mueller, Helmut C. THE ROLE OF VISION IN VESPERTILIONID BATS. Am. Midland Nat. 79(2): 524-525. Apr. 1968. WR 131: 27
[Univ. N.C., Chapel Hill.] Abstract: It is suggested that vision has been retained by vespertilionid bats to facilitate the avoidance of diurnal flight and predation by hawks. The possible role of vision in the homing of bats is discussed.

Munyer, Edward A. A PARTURITION DATE FOR THE HOARY BAT, LASIURUS C. CINEREUS, IN ILLINOIS AND NOTES ON THE NEWBORN YOUNG. Trans. Ill. State Acad. Sci. 60 (1): 95-97. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 28

Olszewski, Jerzy L., and Stanisław Skoczeń. THE AIRING OF BURROWS OF THE MOLE, TALPA EUROPAEA LINNAEUS, 1758. Acta Theriol. 10(11): 181-193, 12 figs. 30 Sept. 1965. In English with Polish summ. WR 131: 28

Abstract: The ventilation of burrows and nests of the mole, T. europaea was examined using the electric anemometer. The air flow in burrows is dependent mainly on the speed of wind over the ground. It was ascertained that air penetrates through fresh mole-hills into the tunnels. The intensity of air currents in burrows is rather much differentiated and depends on the configuration of tunnels, on their position in relation to the ground surface, and on the presence of mounds and openings. In all the nests examined air currents were recordable in the circular tunnels, whereas the chambers were quiet.

Pucek, Zdzisław. MORPHOLOGICAL CHANGES IN SHREWS KEPT IN CAPTIVITY. Acta Theriol. 8(9): 137-166, 12 figs. 15 Oct. 1964. In English with Polish summ. WR 131: 28

Skoczeń, Stanisław. A NEW KEEPING ARRANGEMENT FOR THE MOLE, TALPA EUROPAEA LINNAEUS 1758, IN CAPTIVITY. Acta Theriol. 5(20): 287- 289, 2 figs. 30 Dec. 1961. In English. WR 131: 28

Stones, Robert C., and Thomas Oldenburg. OCCURRENCE OF TORPID MYOTIS LUCIFUGUS IN A COLD MINE IN SUMMER. J. Mammal. 49(1): 123. Feb. 1968. WR 131: 28

[Mich. Technol. Univ., Houghton.]

Tamsitt, J. R. ALTITUDINAL DISTRIBUTION, ECOLOGY, AND GENERAL LIFE HISTORY OF BATS IN THE ANDES OF COLOMBIA. Ybk. Am. Philosophical Soc. 1966. p. 372-373. 1966. WR 131: 28

[Univ. Toronto, Toronto, Ontario, Canada.]

Tamsitt, J. R., and Darío Valdivieso. INFORMATIONS SUR LA REPRODUCTION DES CHÉIROPTÈRES PHYLLOSTOMIDES DE COLOMBIE. [INFORMATION ON THE REPRODUCTION OF THE PHYLLOSTOMID BATS OF COLOMBIA.] Mammalia 28(3): 397-402. Sept. 1964. In French with English summ. WR 131: 28

[Univ. Toronto, Toronto, Ontario, Canada.] Species of bats of the family Phyllostomidae appear to be polyestrus, and tropical species apparently breed throughout the year.--From summ.

Tamsitt, J. R., and Darío Valdivieso. ASPECTS OF ALTITUDINAL DISTRIBUTION OF CHIROPTERANS IN THE EASTERN ANDEAN CORDILLERA OF COLOMBIA. Am. Zool. 5(4): 733-734. Nov. 1965. WR 131: 28

[Univ. Toronto, Toronto, Ontario, Canada.] Collections of 494 specimens of 29 spp. of bats indicate that the Eastern Andean Cordillera does not form a complete barrier to species which range east and west of the cordillera.

Van Deusen, Hobart M. CARNIVOROUS HABITS OF HYPSIGNATHUS MONSTROSUS. J. Mammal. 49(2): 335-336. May 1968. WR 131: 28

[Am. Museum Nat. Hist., New York, N.Y.]

RABBITS & PIKAS

Andrzejewski, Roman, and Zdzisław Pucek. STUDIES ON THE EUROPEAN HARE. X. RESULTS SO FAR OBTAINED FROM RESEARCH IN POLAND AND TRENDS IN CONTINUED STUDIES. Acta Theriol. 10(5): 79-91. 15 Aug. 1965. In English with Polish summ. WR 131: 28

Bailey, James A. RATE OF FOOD PASSAGE BY CAGED COTTONTAILS. J. Mammal. 49 (2): 340-342. May 1968. WR 131: 29
[Ill. Nat. Hist. Surv., Urbana.]

Bartel, Monroe H. THE LIFE CYCLE OF RAILLIETINA (R.) LOEWENI BARTEL AND HANSEN, 1964 (CESTODA) FROM THE BLACK-TAILED JACKRABBIT, LEPUS CALIFORNICUS MELANOTIS MEARNS. J. Parasitol. 51(5): 800-806, 2 figs. Oct. 1965. WR 131: 29
[Moorhead State Coll., Moorhead, Minn.]

Braun, Clait E., and Robert G. Streeter. OBSERVATIONS ON THE OCCURRENCE OF WHITE-TAILED JACKRABBITS IN THE ALPINE ZONE. J. Mammal. 49(1): 160-161. Feb. 1968. WR 131: 29
[Colo. Coop. Wildl. Res. Unit, Fort Collins.] "The evidence presented indicates that...[Lepus townsendii] have been in the past, and are presently, permanent residents of the alpine zone. In Colorado, they are the only hare that frequently is found above timberline."

Bujalska, Gabriela, Krystyna Caboń-Raczyńska, and Jan Raczyński. STUDIES ON THE EUROPEAN HARE. VI. COMPARISON OF DIFFERENT CRITERIA OF AGE. Acta Theriol. 10(1): 1-9, 1 fig. 15 Aug. 1965. In English with Polish summ. WR 131: 29

Czaplińska, Danuta, Bogdan Czapliński, Maria Rutkowska, and Danuta Żebrowska. STUDIES ON THE EUROPEAN HARE. IX. HELMINTH FAUNA IN THE ANNUAL CYCLE. Acta Theriol. 10(4): 55-78, 10 figs. 15 Aug. 1965. In English with Polish summ. WR 131: 29

Dunsmore, J. D. INFLUENCE OF HOST REPRODUCTION ON NUMBERS OF TRICHOSTRONGYLID NEMATODES IN THE EUROPEAN RABBIT, ORYCTOLAGUS CUNICULUS (L.). J. Parasitol. 52(6): 1129-1133. Dec. 1966. WR 131: 29
[CSIRO, Canberra, Australia.]

Flux, J. E. C. HARE NUMBERS AND DIET IN AN ALPINE BASIN IN NEW ZEALAND. Proc. New Zealand Ecol. Soc. 14: 27-33. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 29

Hagen, Karl W. SPONTANEOUS PAPILLOMATOSIS IN DOMESTIC RABBITS. Bull. Wildl. Disease Assoc. 2(4): 108-110, 2 figs. Oct. 1966. WR 131: 29
[Wash. State Univ., Pullman.] Infectious papillomatosis is an enzootic virus disease of wild cottontails (Sylvilagus) rabbits. What is believed to be the first naturally-occurring infection of domestic rabbits is reported, and enzootic infections of the California cottontail rabbit with this virus is suggested.--From abstr.

Hewson, Raymond, and Maurice Taylor. MOVEMENTS OF EUROPEAN HARES IN AN UPLAND AREA OF SCOTLAND. Acta Theriol. 13(2): 31-34, 1 fig. 15 Mar. 1968. In English with Polish summ. WR 131: 29
[Keith, Banffshire, Scotland.] Abstract: European hares Lepus europaeus were marked and released in an upland area of north-east Scotland comprising coniferous woodland, agricultural land and heather moorland, mostly above 180 m above sea level. Of 20 hares marked during 1966, 19 were recovered at an average distance of 1.7 km from the point of first capture. This represents a minimum individual range. There was no significant difference in the distances travelled by males and by females.

Holliman, Rhodes B. A TRYPANOSOMA LEWISI-LIKE ORGANISM FROM THE RABBIT, SYLVILAGUS FLORIDANUS, IN VIRGINIA. J. Parasitol. 52(3): 622. June 1966. WR 131: 29
[Va. Polytech. Inst., Blacksburg.]

Jezierski, Włodzimierz. STUDIES ON THE EUROPEAN HARE. VII. CHANGES IN SOME ELEMENTS OF THE STRUCTURE AND SIZE OF POPULATION. Acta Theriol. 10(2): 11-25, 9 figs. 15 Aug. 1965. In English with Polish summ. WR 131: 29

Jezierski, Włodzimierz. SOME ECOLOGICAL ASPECTS OF INTRODUCTION OF THE EUROPEAN HARE. Acta Theriol. 13(1): 1-30, 8 figs. 15 Mar. 1968. In English with Polish summ. WR 131: 30

Abstract: Large groups of European hares (from 400 to 1400 individuals in number, depending on the size of the area), were introduced into three areas differing as to the density of the local hare population and quality of the habitat. The hares introduced were marked so that they could be distinguished from individuals belonging to the local population. Observations made by means of the assessment belt method and captures of the animals for checking showed that the introduced hares disappear from the settled areas to a greater degree than would appear to be the case with normal interchange of individuals in a population. The intensity and rate of this process is greater where the local population is more numerous, but it does not seem to depend on habitat conditions. The hares introduced occupy a relatively smaller percentage of the crops preferred by the local population. The distribution in space of the hares takes the form of concentrations. It was not found that the numbers of the populations examined were increased as a result of the introduction of other hares.

Mazurkiewicz, Maria. EFFECT OF KEEPING EUROPEAN HARES IN TRANSPORT CAGES. Acta Theriol. 13(4): 55-64, 3 figs. 15 Mar. 1968. In English with Polish summ. WR 131: 30

[Inst. Ecol., Polish Acad. Sci., Warsaw.] Abstract: Seventy-eight hares were kept in transport cages for 30 days. This resulted in decrease of body weight, haematocrit, haemoglobin content, and L/N ratio, increase of MCHC, leucocyte number, and blood sedimentation rate, decreased running ability and a steady increase of mortality.

Myers, K. THE EFFECTS OF DENSITY ON SOCIALITY AND HEALTH IN MAMMALS. Proc. Ecol. Soc. Australia I: 40-64. 1966. WR 131: 30

[CSIRO, Canberra, Australia.] As the population density of Oryctolagus cuniculus rises, physiological and behavioral adaptations occur. Physiological derangements do not result unless living area decreases. Mortality rates vary directly with decrease in space.

Mykytowycz, R. FURTHER OBSERVATIONS ON THE TERRITORIAL FUNCTION AND HISTOLOGY OF THE SUBMANDIBULAR CUTANEOUS (CHIN) GLANDS IN THE RABBIT, ORYCTOLAGUS CUNICULUS (L.). Animal Behaviour 13(4): 400-412, 2 figs. + 2 pls. Oct. 1965. WR 131: 30

[CSIRO, Canberra, Australia.] Observations on the frequency of chinning and the weight and histology of the submandibular glands of free-living wild rabbits indicate that: the chin glands are larger in males than in females; sexual dimorphism appears when sexual maturity occurs; males chin more frequently than females. The size of the gland and the frequency of chinning are correlated with social status, and the glands seem to be largest and most active during the breeding season.

Mykytowycz, R. COMMUNICATION BY SMELL IN THE WILD RABBIT. Proc. Ecol. Soc. Australia 2: 125-131. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 30

Myrcha, Andrzej. CALORIC VALUE AND CHEMICAL COMPOSITION OF THE BODY OF THE EUROPEAN HARE. Acta Theriol. 13(5): 65-70. 15 Mar. 1968. WR 131: 30

[Inst. Ecol., Polish Acad. Sci., Warsaw.]

Nowak, Eugeniusz. ROZMIESZCZENIE, DYNAMIKA ILOŚCIOWA I ZNACZENIE DZIKIEGO KRÓLIKA, ORYCTOLAGUS CUNICULUS (LINNAEUS, 1758) W POLSCE. [DISTRIBUTION, VARIATIONS IN NUMBER AND IMPORTANCE OF THE WILD RABBIT, ORYCTOLAGUS CUNICULUS (LINNAEUS, 1758) IN POLAND.] Acta Theriol. 13(5): 75-97, 7 figs. 15 Mar. 1968. In Polish with English summ. WR 131: 30

The wild rabbit did not reach Poland until the second half of the 19th century, chiefly as the result of numerous introductions. Its natural spread was of secondary importance. The present eastern limit of the wild rabbit's

range has remained unchanged for about 40 years. Numbers were estimated in each of the forest administration districts according to an agreed 4-degree scale: single, scanty, numerous and very numerous. Recently there have been very few wild rabbits in Poland, there being slightly more in the north and central part of the country than in the south, and in the western part of their living area than in the east. The isotherms of the winter months are very similar in the course to the eastern limit of the wild rabbit's range in Poland. A decrease in numbers of wild rabbit is caused chiefly by hard winters. Predators, and probably also diseases (including myxomatosis) are of secondary importance as factors reducing population. The damage done at present by the wild rabbit in Poland is not great.--From abstr.

Parker, B. S., and H. G. Bults. PRELIMINARY SURVEY OF RABBIT DISTRIBUTION IN THE KOSCIUSKO STATE PARK, NEW SOUTH WALES, 1964-65. CSIRO Div. Wildl. Res. Tech. Pap. no. 12. 8 p. + folded map. 1967. WR 131: 31

[CSIRO, Canberra, Australia.] Rabbits are mainly confined to the open high plains areas between 3,000 and 5,000 ft. Six grassland areas had large numbers of rabbits and 41 were considered capable of carrying large numbers.

Payne, Neil F. THE INFLUENCE OF HUNTING ON RABBIT POPULATIONS IN SOUTHEASTERN VIRGINIA. M.S. thesis, Va. Polytech. Inst. 76 p. 1964. WR 131: 31

Removal of different percentages of cottontail populations indicated that as high as a 75% fall reduction left a breeding population which was able to produce comparable numbers the following year. Intense hunting, under normal circumstances and with cover conditions as dense as experienced in southeastern Virginia, is not a depressing factor to a cottontail population.--Courtesy/ Burd S. McGinnes.

Rajska, Ewa. ESTIMATION OF EUROPEAN HARE POPULATION DENSITY DEPENDING ON THE WIDTH OF THE ASSESSMENT BELT. Acta Theriol. 13(3): 35-53, 6 figs. 15 Mar. 1968. In English with Polish summ. WR 131: 31

[Inst. Ecol., Polish Acad. Sci., Warsaw.] Abstract: The average results of assessment and estimation of variations in density were compared, using assessment belts 50, 100 and 150 m in width. Timidity and distribution of the hares in space were also examined. Over-estimation of numbers decreases with an increase in the width of the assessment belt. A belt 50 m wide is too narrow to assess numbers correctly, as results are distinctly over-estimated when this width is used. The occurrence of hares in concentrations, and their starting up in whole groups tend to create errors in assessment. The number of hares outside the assessment belt is thus dependent on the latter's width. The density of hare populations affects errors in assessment. Estimates of the timidity of hares show a tendency to decrease with increasing width of the assessment belt.

Rusch, Donald H. SOME MOVEMENTS OF BLACK-TAILED JACKRABBITS IN NORTHERN UTAH. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 222-226. [1964.] WR 131: 31

The extent of some movements of marked jackrabbits in Curlew Valley, northwestern Utah.

Sparks, D. R. OCCURRENCE OF MILK IN STOMACHS OF YOUNG JACKRABBITS. J. Mammal. 49(2): 324-325. May 1968. WR 131: 31

[Colo. State Univ., Fort Collins.] "Lepus townsendii."

Walhovd, Helge. RELIABILITY OF AGE CRITERIA FOR DANISH HARES (LEPUS EUROPAEUS PALLAS). Danish Rev. Game Biol. 4(3): 106-128, 12 figs. 1966. In English with Danish summ. WR 131: 31

[Univ. Aarhus, Aarhus C, Denmark.] Ages of 191 brown hares were determined experimentally by palpation of the epiphyseal cartilage in the ulna, by x-ray of the same bone, by dry lens weight, and by body weight. Results were compared with ages determined by visual examination of the humeri for the epiphyseal

cartilage or groove. Palpation appeared to be an uncertain aging technique; lateral x-ray exposures showed the various stages of ossification clearly enough for fairly accurate age determination. Lens weights of adults were heavier than those of young hares, but body weight was not consistent with skeletal maturity.

Wasylik, Antoni. STUDIES ON THE EUROPEAN HARE. VIII. DYNAMICS OF OCCURRENCE OF LISTROPHORUS GIBBUS PAGENSTECHER, 1862. Acta Theriol. 10(3): 27-54, 11 figs. 15 Aug. 1965. In English with Polish summ. WR 131: 32
A total of 350 dead hares was examined and 6928 mites were collected.

Wodzicki, Kazimierz, and J. H. Darwin. OBSERVATIONS ON THE REPRODUCTION OF THE WILD RABBIT (ORYCTOLAGUS CUNICULUS L.) AT VARYING LATITUDES AND ALTITUDES IN NEW ZEALAND. New Zealand J. Sci. 5(4): 463-474, 3 figs. Dec. 1962. WR 131: 32
[DSIR, Lower Hutt, New Zealand.]

Yuill, Thomas M., and Robert P. Hanson. SEROLOGIC EVIDENCE OF CALIFORNIA ENCEPHALITIS VIRUS AND WESTERN EQUINE ENCEPHALITIS VIRUS IN SNOWSHOE HARES. Zoonoses Res. 3(3): 153-164, 2 figs. Dec. 1964. In English with Spanish and German summ. WR 131: 32

RODENTS--MISCELLANEOUS

Barbour, Roger W., and Michael J. Harvey. THE EFFECT OF RADIOACTIVE TAGS ON THE ACTIVITY OF RODENTS. Am. Midland Nat. 79(2): 519-522. Apr. 1968. WR 131: 32
[Univ. Ky., Lexington.] Abstract: A comparative study of the activity of Co^{60}-tagged versus normal Microtus ochrogaster and Baiomys taylori was conducted in the laboratory. Eight individuals, two of each sex of each species were used, one of each pair as a control, the other as tagged experimental animal. Activity of each pair was compared for 48 hours prior to tagging one of them, for 48 hours immediately after tagging, and at subsequent intervals of four and eight weeks after tagging. Gross weights of the animals were recorded before and after each 48-hour experimental period, and food and water consumption of each was recorded. No significant differences in activity between tagged and untagged animals due to the subcutaneous presence of the radioactive tag were apparent during the eight weeks of the experiment.

Bateman, Gary C. HOME RANGE STUDIES OF A DESERT NOCTURNAL RODENT FAUNA. Ph.D. thesis, Univ. Ariz. 115 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 32
"Perognathus amplus, P. baileyi, P. penicillatus, Neotoma albigula, and Peromyscus eremicus."

Batzli, George O. DISPERSION PATTERNS OF MICE IN CALIFORNIA ANNUAL GRASSLAND. J. Mammal. 49(2): 239-250, 6 figs. May 1968. WR 131: 32
[Univ. Calif., Berkeley.] Abstract: Dispersion patterns of grassland mice were contagious. The frequency of occurrence of Microtus californicus tracks and pooled tracks of Peromyscus maniculatus and Reithrodontomys megalotis showed positive correlations with the per cent cover of wild oats (Avena). No such correlations existed with other widespread species of grass nor with the total amount of grass cover. The distribution of cuttings suggested that Avena was the major food of Microtus at this time thus implicating food as a major factor in the control of dispersion. Trapping records revealed seasonal changes in the concentrations of mice on different parts of the study plot. The concentration of Microtus was inversely related to the concentration of the other species, which suggested that dispersion was influenced by interspecific interactions.

Blagen, William Simon. HABITAT ECOLOGY OF A RELICT RED-BACKED VOLE POPULATION IN IOWA. Ph.D. thesis, Iowa State Univ. 241 p. 1967. [From Dissertation Abstr. 28(9B), 1968.] WR 131: 33
Six-year study, 1961-1966, of Clethrionomys gapperi loringi.

Bowen, W. Wedgwood. VARIATION AND EVOLUTION OF GULF COAST POPULATIONS OF BEACH MICE, PEROMYSCUS POLIONOTUS. Bull. Fla. State Museum Biol. Sci. 12(1): 1-91, 34 figs. 19 Apr. 1968. Price $1.20. WR 131: 33
Taxonomy, variation and predation, pelage patterns, color variation, size variation, polymorphism, origin of pattern traits, evolutionary sequences and incipient speciation of Peromyscus polionotus.

Brown, Larry N. BOTFLY PARASITISM IN THE BRUSH MOUSE AND WHITE-FOOTED MOUSE IN THE OZARKS. J. Parasitol. 51(2): 302-304. Apr. 1965. WR 131: 33
[Univ. S. Fla., Tampa.]

Brown, Larry N. SMALLNESS OF MEAN LITTER SIZE IN THE MEXICAN VOLE. J. Mammal. 49(1): 159. Feb. 1968. WR 131: 33
[Univ. S. Fla., Tampa.] "Microtus mexicanus."

Carmon, J. L., R. G. Williams, and F. B. Golley. EFFECTS OF TEMPERATURE AND RADIATION ON LITTER SIZE AND GROWTH IN PEROMYSCUS POLIONOTUS. Growth 31 (1): 79-89. Mar. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 33

Clough, Garrett C. SOCIAL BEHAVIOR AND ECOLOGY OF NORWEGIAN LEMMINGS DURING A POPULATION PEAK AND CRASH. Papers Norwegian State Game Res. Inst. Ser. 2(28): 1-50, 4 figs. 1968. WR 131: 33
[Univ. R.I., Kingston.] Ecology and social behavior of Lemmus lemmus was studied in central Norway from June 1963 to July 1964. Decline from peak population densities occurred during this period; studies of habitat areas indicated the lemmings emigrated rather than migrated. It was concluded that the emigration was not the cause of the population crash. Both the emigration and the crash are thought to be separate effects related to the high population density.--From summ.

Colorado Agricultural Experiment Station. SOME RELATIONS OF POCKET GOPHERS TO RANGELANDS ON GRAND MESA, COLORADO. Colo. Agr. Expt. Sta. Tech. Bull. no. 88. 20 p., 6 figs. Mar. 1966. WR 131: 33
Thomomys talpoides were studied on Grand Mesa, west-central Colo., with reference to age structure, breeding characteristics, population dynamics, food habits, and herbage production on a control area and on 2,4-D treated areas during 1956-62. One year after treatment with 2,4-D pocket gophers declined by 87%; a natural die-off was observed on the control area in 1958 which decreased the population by 74%.--From summ.

Crouch, Glenn L. CLIPPING OF WOODY PLANTS BY MOUNTAIN BEAVER. J. Mammal. 49(1): 151-152. Feb. 1968. WR 131: 33
[Forestry Sci. Lab., Olympia, Wash.] "Aplodontia rufa."

Davis, D. H. S. THE SMALL RODENTS OF THE TRANSVAAL: SOME TAXONOMIC, BIOGEOGRAPHIC, ECONOMIC AND HEALTH PROBLEMS. Fauna & Flora no. 17. p. 4-12, 4 figs. 1966. WR 131: 33
[Med. Ecol. Centre, Dept. Health, Johannesburg, South Africa.]

Dodge, Wendell Everett. THE BIOLOGY AND LIFE HISTORY OF THE PORCUPINE (ERETHIZON DORSATUM) IN WESTERN MASSACHUSETTS. Ph.D. thesis, Univ. Mass. 173 p. 1967. [From Dissertation Abstr. 28(9B), 1968.] WR 131: 33

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Douglas, Charles Leigh. COMPARATIVE ECOLOGY OF PINYON MICE AND DEER MICE IN MESA VERDE NATIONAL PARK, COLORADO. Ph.D. thesis, Univ. Kans. 212 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 34

Degree of competition for food, shelter, and living space between sympatric populations of Peromyscus t. truei, and P. maniculatus rufinus was studied by analyzing the habitat, behavior patterns, and population dynamics of each species.

Eldridge, M. J. SOME OBSERVATIONS ON APODEMUS SYLVATICUS AND CLETHRIONOMYS GLARBOLUS USING THE METHOD OF LIVE TRAPPING. J. Zool. (London) 155(2): 231-235, 3 figs. June 1968. WR 131: 34

[26 Woodlands Road, Hertford, England.] Numbers caught, numbers in relation to vegetation, movements and weights.

French, Norman R., Theodore Y. Tagami, and Page Hayden. DISPERSAL IN A POPULATION OF DESERT RODENTS. J. Mammal. 49(2): 272-280, 2 figs. May 1968. WR 131: 34

[Univ. Calif., Los Angeles.] Abstract: Dispersal of two species of kangaroo rats and two species of pocket mice in the Mojave Desert was examined by live-trapping intensively an 8-ha (20-acre) area, and by setting rows of live-traps at 152-m (500 ft) intervals out to 914 m (3000 ft) from the area. Dispersal distances of Perognathus formosus were arranged in a frequency distribution. Dispersal appears to be nonrandom. There were too many moves to great distances and too few to intermediate distances for dispersal to be considered random. The results support the hypothesis that some members of the population have an instinct to disperse, and that their moves are long distance ones. Both young and old animals made dispersal movements, some more than once. We estimate 25 to 30% of the P. formosus made dispersal movements during the period of 1 year. Kangaroo rats wander during the nonbreeding season, but our sampling was not adequate to evaluate dispersal of these rodents.

Gier, H. T., and Ben F. Cooksey, Jr. MICROTUS OCHROGASTER IN THE LABORATORY. Trans. Kans. Acad. Sci. 70(2): 256-265. Summer 1967. [From J. Mammal. 49(2), 1968.] WR 131: 34

Harman, Dan M., and Theodore Thoerig. OCCURRENCE OF THE PORCUPINE ERETHIZON DORSATUM AND THE NUTRIA MYOCASTOR COYPUS BONARIENSIS IN WESTERN MARYLAND. Chesapeake Sci. 9(2): 138-139, 1 fig. June 1968. WR 131: 34

[Nat. Resources Inst., La Vale, Md.] Abstract: The porcupine Erethizon dorsatum (L.) has been taken recently by hunters at one location in Allegany County and two in Garrett County, Maryland. Except for fossil records, the porcupine has been unreported in Maryland since 1881. The nutria Myocastor coypus bonariensis (E. Geoffroy St.-Hilaire), of uncertain status in western Maryland, was trapped in two locations in Garrett County. Possible sources of the nutria are farms where the animal is being reared for furs.

Howard, Walter E., Rex E. Marsh, and Ronald E. Cole. FOOD DETECTION BY DEER MICE USING OLFACTORY RATHER THAN VISUAL CUES. Animal Behaviour 16(1): 13-17, 1 fig. Feb. 1968. WR 131: 34

[Univ. Calif., Davis.] The percentage of buried conifer and agricultural grain seeds either detected or removed by ten deer mice (Peromyscus maniculatus) in a subdued-light environment (0.25 ft-candle) did not differ significantly from the percentage detected or removed in total darkness.--From summ.

Jorgensen, Clive D. HOME RANGE AS A MEASURE OF PROBABLE INTERACTIONS AMONG POPULATIONS OF SMALL MAMMALS. J. Mammal. 49(1): 104-112, 1 fig. Feb. 1968. WR 131: 34

[Brigham Young Univ., Provo, Utah.] Abstract: A technique for estimating the probability of interaction in space using the home range as a basis of measurement is presented. The overlap area between adjacent home ranges and the relative use of home range area are used to obtain the estimate. The methods were demonstrated with data for Perognathus longimembris (Coues) for

the USAEC Nevada Test Site. Probable interaction between females ranged from .6301 for individuals with recapture centers only 11.43 m apart to .0000 for animals 88.53 m apart. In this case the recapture radius was 44.45 m. Probable interaction between males and females ranged from .6289 to .0000 with distances from recapture centers of 11.43 m to 85.53 m, respectively. Assumptions required by this technique and limitations of interpretation are discussed.

Kami, Harry T. FOODS OF RODENTS IN THE HAMAKUA DISTRICT, HAWAII. Pacific Sci. 20(3): 367-373. July 1966. [From J. Mammal. 49(2), 1968.] WR 131: 35

Kubik, Jerzy. BIOMORPHOLOGICAL VARIABILITY OF THE POPULATION OF CLETHRIONOMYS GLAREOLUS (SCHREBER, 1780). Acta Theriol. 10(10): 117-179, 32 figs. 30 Sept. 1965. In English with Polish summ. WR 131: 35

Kulicke, H. [THE PART ARVICOLA TERRESTRIS PLAYS IN FORESTRY.] Arch. Forstwesen 16(6/9): 797-801, map. 1967. [From Bibliog. Agr. 32(6), 1968. In German.] WR 131: 35

Lambrecht, W. [LARGE AREA CONTROL OF FIELD MOUSE IN THE FOREST.] Lohnunternehmen Land- Forstwirtsch. 22(10): 238, 240-241. 15 Oct. 1967. [From Bibliog. Agr. 32(6), 1968. In German.] WR 131: 35

Lewis, J. W. STUDIES ON THE HELMINTH PARASITES OF THE LONG-TAILED FIELD MOUSE, APODEMUS SYLVATICUS SYLVATICUS FROM WALES. J. Zool. (London) 154(3): 287-312, 9 figs. Mar. 1968. WR 131: 35
[Univ. London, Englefield Green, Surrey, England.] The incidence and degree of infestation of the long-tailed field mouse, Apodemus sylvaticus with helminth parasites have been studied from a rough grassland and woodland area, Aberystwyth and from Skomer Island in Wales. With few exceptions, adult mice were more heavily infested than juveniles.--From abstr.

Linzey, Donald W. AN ECOLOGICAL STUDY OF THE GOLDEN MOUSE, OCHROTOMYS NUTTALLI, IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK. Am. Midland Nat. 79(2): 320-345, 4 figs. Apr. 1968. WR 131: 35
[Cornell Univ., Ithaca, N.Y.] Distribution, sex and age composition, breeding season, population fluctuation, longevity, relations with other species, home range, distances between successive captures, nests, food habits, and parasites of Ochrotomys nuttalli are discussed.

Martin, Robert A. LATE PLEISTOCENE DISTRIBUTION OF MICROTUS PENNSYLVANICUS. J. Mammal. 49(2): 265-271, 2 figs. May 1968. WR 131: 35
[Fla. State Museum, Gainesville.]

Maser, Chris, and Murray L. Johnson. NOTES ON THE WHITE-FOOTED VOLE (PHENACOMYS ALBIPES). Murrelet 48(2): 24-27 + 1 [fig.]. May-Aug. 1967. WR 131: 35
[Oreg. State Univ., Corvallis.] Description, distribution, habitat, food, pregnancy records, and testis size of Phenacomys albipes. Records consist of 28 museum specimens and 9 literature references.

Morris, P. A. APPARENT HYPOTHERMIA IN THE WOOD MOUSE (APODEMUS SYLVATICUS). J. Zool. (London) 155(2): 235-236. June 1968. WR 131: 35
[Univ. London, Egham, Surrey, England.]

Neidert, Clea M., and Ralph W. Macy. CONCINNUM PEROMYSCI SP.N. (TREMATODA: DICROCOELIIDAE) FROM PEROMYSCUS MANICULATUS IN OREGON. Am. Midland Nat. 79(2): 525-528, 3 figs. Apr. 1968. WR 131: 35
[Portland State Coll., Portland, Oreg.]

Packard, Gary C. OXYGEN CONSUMPTION OF MICROTUS MONTANUS IN RELATION TO AMBIENT TEMPERATURE. J. Mammal. 49(2): 215-220, 1 fig. May 1968. WR 131: 36
[Colo. State Univ., Fort Collins.] Abstract: Standard metabolic rates of montane voles, Microtus montanus, average 2.65 cc O_2/g hr, a value that is 75% higher than would be predicted from empirical equations relating metabolism to body weight. A thermoneutral zone extends from 26-31°C. Below thermoneutrality, oxygen consumption is an inverse, linear function of ambient temperature. Minimal thermal conductance is estimated at 0.816 cal/g hr °C. Body temperatures of montane voles are independent of ambient temperature between -5°C and 26°C, and average 37.5-37.8°C.

Pattie, Donald L. DYNAMICS OF ALPINE SMALL MAMMAL POPULATIONS. Ph.D. thesis, Univ. Mont. 109 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 36
"Peromyscus maniculatus, Microtus montanus, and Arvicola richardsoni."

Patton, James L., and Ross E. Dingman. CHROMOSOME STUDIES OF POCKET GOPHERS, GENUS THOMOMYS. I. THE SPECIFIC STATUS OF THOMOMYS UMBRINUS (RICHARDSON) IN ARIZONA. J. Mammal. 49(1): 1-13, 8 figs. Feb. 1968. WR 131: 36
[Univ. Ariz., Tucson.]

Reichstein, Hans. POPULATIONSSTUDIEN AN STEPPENBEWOHNENDEN NAGETIEREN OSTAFRIKAS. [POPULATION STUDIES OF STEPPE-INHABITING RODENTS OF EAST AFRICA.] Z. Säugetierk. 32(5): 309-313. Oct. 1967. [From J. Mammal. 49(2), 1968. In German with English summ.] WR 131: 36

Savić, I., and M. Mikes. ZUR KENNTNIS DES 24-STUNDEN-RHYTHMUS VON SPALAX LEOCODON NORDMANN, 1840. [INFORMATION REGARDING THE DIEL-RHYTHM OF SPALAX LEUCODON NORDMANN, 1840.] Z. Säugetierk. 32(4): 233-238. Aug. 1967. [From J. Mammal. 49(1), 1968. In German with English summ.] WR 131: 36

Schindler, U. [MICE CONTROL IN THE FOREST.] Forsttech. Inform. 8: 55-67. Aug. 1967. [From Bibliog. Agr. 32(6), 1968. In German.] WR 131: 36

Schwarz, S. S., A. V. Pokrovski, V. G. Istchenko, V. G. Olenjev, N. A. Ovtschinnikova, and O. A. Pjastolova. BIOLOGICAL PECULIARITIES OF SEASONAL GENERATIONS OF RODENTS, WITH SPECIAL REFERENCE TO THE PROBLEM OF SENESCENCE IN MAMMALS. Acta Theriol. 8(2): 11-43, 10 figs. 15 Oct. 1964. In English with Polish summ. WR 131: 36

Sicher, Ermo A., and W. N. Bradshaw. THE REPRODUCTIVE PATTERN OF THE WOOD MOUSE (PEROMYSCUS LEUCOPUS) IN NORTHERN WEST VIRGINIA. Proc. W. Va. Acad. Sci. 38: 23-31. 1966. [From J. Mammal. 49(1), 1968.] WR 131: 36

Sidorowicz, Jerzy. COMPARISON OF THE MORPHOLOGY OF REPRESENTATIVES OF THE GENUS LEMMUS LINK, 1795 FROM ALASKA AND THE PALAEARCTIC. Acta Theriol. 8(14): 217-226. 15 Oct. 1964. In English with Polish summ. WR 131: 36

Speth, R. Lynn, Clyde L. Pritchett, and Clive D. Jorgensen. REPRODUCTIVE ACTIVITY OF PEROGNATHUS PARVUS. J. Mammal. 49(2): 336-337. May 1968. WR 131: 36
[Brigham Young Univ., Provo, Utah.]

Storm, G. L., and Glen C. Sanderson. HOUSING AND REPRODUCTIVE PERFORMANCE OF AN OUTDOOR COLONY OF VOLES. J. Mammal. 49(2): 322-324, 1 fig. May 1968. WR 131: 36
[Ill. Nat. Hist. Surv., Urbana.] "Microtus pennsylvanicus."

Taylor, J. Mary. REPRODUCTIVE MECHANISMS OF THE FEMALE SOUTHERN GRASSHOPPER MOUSE, ONYCHOMYS TORRIDUS LONGICAUDUS. J. Mammal. 49(2): 303-309. May 1968. WR 131: 37

[Univ. British Columbia, Vancouver, Canada.] Abstract: The reproductive pattern of the female southern grasshopper mouse (Onychomys torridus longicaudus Merriam) is presented in terms of gestation period, litter size, ovarian histology, and time of sexual maturation, and is discussed with reference to mechanisms that support the maintenance of a relatively low population density in this species. The major potential contributors of offspring are young mature females a year old or less; their opportunity to contribute to the population appears to be modulated by the time within the span of the breeding season in which they are born.

Trojan, Przemysław, and Bożena Wojciechowska. STUDIES ON THE RESIDENCY OF SMALL FOREST RODENTS. Ekologia Polska--Ser. A 12(3): 33-50, 2 figs. 1964. In English with Polish summ. WR 131: 37

Abstract: An analysis was made of the principles for estimating the presence of rodents, using the catch, mark, release method, based on an analysis of the time intervals between consecutive captures. It was assumed that a rodent was present if the length of time interval between captures did not exceed the value ($V + 3\sigma_u$). The curve characterising the rate of disappearance of individuals for a time interval greater than zero is exponential in the case of Apodemus flavicollis Melch. and A. agrarius Pall. In the case of Clethrionomys glareolus Schreb. three different sections of the curve have different exponents. Examination was made of the further average time of occurrence of individuals depending on the time they had already lived in a given place, and three phases of residence were discovered: settling, real residency and disappearance, which are characterised by different chances of the individual's survival, trappability and area penetrated. The differences observed between the species in this respect are discussed.

Turner, Ronald W., and John B. Bowles. COMMENTS ON REPRODUCTION AND FOOD HABITS OF THE OLIVE-BACKED POCKET MOUSE IN WESTERN NORTH DAKOTA. Trans. Kans. Acad. Sci. 70(2): 266-267. Summer 1967. [From J. Mammal. 49(2), 1968.] WR 131: 37

"Perognathus fasciatus."

Turner, Ronald W., and Howard J. Stains. EFFECTS OF A CORNFIELD UPON THE MOVEMENT OF PEROMYSCUS LEUCOPUS. Trans. Ill. State Acad. Sci. 60(3): 282-298. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 37

Van Vleck, David B. MOVEMENTS OF MICROTUS PENNSYLVANICUS IN RELATION TO DEPOPULATED AREAS. J. Mammal. 49(1): 92-103, 1 fig. Feb. 1968. WR 131: 37

[Univ. Miami, Coral Gables, Fla.] Abstract: Movements of individual voles were studied before, during, and after decimation of a segment of five Microtus pennsylvanicus populations. On each occasion a field was live-trapped and voles were marked; a central area of each field was then snap-trapped for 28 days. Snap-trap data demonstrated that 50% of all voles were live-trapped. Less than 11% of the marked voles moved into the central area after day three of the snap-trap period. Longer movements into this area were found with passage of time. A greater percentage of voles moved in from areas of high population densities, but distance of movement did not depend on density. Nonpregnant females moved farther than did pregnant females, but no significant difference was found between the number of each sex that moved into the area. From 80 to 100% of the residents were snap-trapped in the first three days. Two weeks were necessary to trap a number of incoming voles equal to the number of residents killed on that area. Time durations of stationary home ranges are presented. Comparisons are made between movements of Microtus and Peromyscus, and the effectiveness of trapping procedures is discussed.

Voth, Elver Howard. FOOD HABITS OF THE PACIFIC MOUNTAIN BEAVER, APLODONTIA RUFA PACIFICA MERRIAM. Ph.D. thesis, Oreg. State Univ. 276 p. 1968. [From Dissertation Abstr. 28(11B), 1968.] WR 131: 38

Results verified opinions of the mountain beaver as a primitive rodent eating a primitive plant diet. Deer management studies, especially that by Crouch, have shown little dependence by deer on pteridophytes such as sword-fern or bracken. These two species composed 82% of the adult male mountain beaver diet. This rodent eats bracken, poisonous to other herbivores, with complete immunity. The animal occupies a food niche no other herbivore wants and which in respect to ferns is not in competition with deer.

Wolfe, James L. AVERAGE DISTANCE BETWEEN SUCCESSIVE CAPTURES AS A HOME RANGE INDEX FOR PEROMYSCUS LEUCOPUS. J. Mammal. 49(2): 342-343. May 1968. WR 131: 38

[Miss. State Univ., State College.]

RATTUS & MUS

Beveridge, A. E., and M. J. Daniel. A FIELD TRIAL OF A NEW RAT POISON, COMPOUND S-6999, ON BROWN RATS. Proc. New Zealand Ecol. Soc. 13: 40-43, 1 fig. 1966. WR 131: 38

[Animal Ecol. Div., DSIR, Lower Hutt, New Zealand.] Two acceptance trials with brown rats were carried out on Mokoia Island, Lake Rototua from Nov. 1965 to Jan. 1966. Results indicated that brown rats in a forest habitat will accept packeted Raticate baits placed on the ground during summer.

Hood, Glenn A. A RODENT CONTROL RESEARCH PROGRAM IN HAWAII. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 272-281. [1967.] WR 131: 38

[Bur. Sport Fisheries & Wildl., Hilo, Hawaii.] Abstract: During 1966 a research program was established in Hawaii by the Bureau of Sport Fisheries and Wildlife to develop methods of alleviating crop depredation by rodents. Sugarcane losses to rodents in Hawaii are estimated at 4.5 million dollars annually, with lesser amounts occurring in nut, vegetable, and fruit crops. Three rodent species are involved: the Polynesian rat (Rattus exulans), the Norway rat (R. norvegicus), and the black rat (R. rattus). The broadly based program emphasizes: (1) studies of rat ecology in relation to agricultural damage, providing bases for testing and selection of suitable methods and materials; (2) research on physiological "weak spots" that can be exploited as a means of control while minimizing hazards to other animals; (3) laboratory and field evaluations of candidate lethal agents being developed as conventional rodenticides; and (4) development of effective baits and baiting methods for conveying various treatments to rodent populations.

Petrusewicz, Kazimierz, and Roman Andrzejewski. NATURAL HISTORY OF A FREE-LIVING POPULATION OF HOUSE MICE (MUS MUSCULUS LINNAEUS), WITH PARTICULAR REFERENCE TO GROUPINGS WITHIN THE POPULATION. Ekologia Polska--Ser. A 10(5): 85-122, 13 figs. 1962. In English with Polish summ. WR 131: 38

Abstract: Description and analysis of the dynamics of a free-living, but supplementarily fed population of the house mouse. Analysis (characteristics, variation in time, correlation with population dynamics) taking into consideration sex, and migratory and settled mice, of the following elements of the ecological structure of the population: length of life, ecological death rate, trappability, numbers, degree of habit association for feeder, tendency to form groups within the population. Definition and description of the ephemeral part of the population. Description of the "calendar of catches"--methods of working out ecological data.

Quadagno, David M. HOME RANGE SIZE IN FERAL HOUSE MICE. J. Mammal. 49(1): 149-151. Feb. 1968. WR 131: 38

[Univ. Ill., Urbana.] Studies indicate that interspecific interactions as well as intraspecific interactions can influence size of home range.

Reimer, John D., and Michael L. Petras. SOME ASPECTS OF COMMENSAL POPULATIONS OF MUS MUSCULUS IN SOUTHWESTERN ONTARIO. Canadian Field-Nat. 82(1): 32-42, 2 figs. Jan.-Mar. 1968. WR 131: 39

[Univ. Windsor, Windsor, Ontario, Canada.] In extensive trapping during a 15-month period on farms in southwestern Ontario adult females were significantly more frequent than males in buildings, males were more frequent than females in field populations, and the two sexes were equal in juveniles. The low frequency of adult males in buildings and storage structures suggest that male house mice must compete for territory in preferred commensal habitat.

Tomich, P. Quentin. COAT COLOR IN WILD POPULATIONS OF THE ROOF RAT IN HAWAII. J. Mammal. 49(1): 74-82, 1 fig. Feb. 1968. WR 131: 39

[Plague Res. Unit, Hawaii State Health Dept., Honokaa.] "Rattus rattus rattus."

SCIURIDS

Barr, Ronald E., and X. J. Musacchia. BREEDING AMONG CAPTIVE CITELLUS TRIDECEMLINEATUS. J. Mammal. 49(2): 343-344. May 1968. WR 131: 39

[Univ. Mo., Columbia.]

Bradley, W. Glen. FOOD HABITS OF THE ANTELOPE GROUND SQUIRREL IN SOUTHERN NEVADA. J. Mammal. 49(1): 14-21, 2 figs. Feb. 1968. WR 131: 39

[Nev. Southern Univ., Las Vegas.] Ammospermophilus leucurus is omnivorous. Food preferences appear to be closely related to food availability and to the need for some succulent food in the diet for the maintenance of water balance. Seeds are a staple throughout the year, strongly supplemented by green vegetation in the winter and spring and by insects in the summer and fall. Some vertebrate remains are found in stomachs throughout the year, and probably represent both prey and carrion. The highly generalized diet is discussed in relation to the large home range of the species and to the heterogeneity of the biotic community.--From abstr.

Broadbooks, Harold E. MOLTS OF THE YELLOW-PINE CHIPMUNK, EUTAMIAS AMOENUS. Am. Midland Nat. 79(2): 364-387, 9 figs. Apr. 1968. WR 131: 39

[Southern Ill. Univ., Edwardsville.]

Conaway, C. H. POST PARTUM ESTRUS IN A SCIURID. J. Mammal. 49(1): 158-159. Feb. 1968. WR 131: 39

[Univ. Mo., Columbia.] "Exilisciurus exilis."

Dorney, Robert S. INCIDENCE OF BOTFLY LARVAE (CUTEREBRA EMASCULATOR) IN THE CHIPMUNK (TAMIAS STRIATUS) AND RED SQUIRREL (TAMIASCIURUS HUDSONICUS) IN NORTHERN WISCONSIN. J. Parasitol. 51(5): 893-894. Oct. 1965. WR 131: 39

[Univ. Waterloo, Waterloo, Ontario, Canada.]

Eiberle, K., and F. Ziegler. [BARK-PEELING DAMAGE CAUSED BY SQUIRREL.] Schweiz. Z. Forstwesen 118(11): 717-723. Nov. 1967. [From Bibliog. Agr. 32 (6), 1968. In French with German summ.] WR 131: 39

Ford, Bennie R., and Bruce Z. Lang. FASCIOLA HEPATICA IN HIBERNATING CITELLUS TRIDECEMLINEATUS (MITCHELL). J. Parasitol. 53(5): 1073. Oct. 1967. WR 131: 39

[Univ. Okla., Norman.]

Horwich, Robert H. THE ONTOGENY OF SOCIAL BEHAVIOR IN THE GRAY SQUIRREL, SCIURUS CAROLINENSIS. Ph.D. thesis, Univ. Md. 295 p. 1967. [From Dissertation Abstr. 28(9B), 1968.] WR 131: 39

Existing ontogenetic classification schemes were used to classify behavior patterns of young Sciurus carolinensis.

Kim, Ke Chung. THE SPECIES OF ENDERLEINELLUS (ANOPLURA, HOPLOPLEURIDAE) PARASITIC ON THE SCIURINI AND TAMIASCIURINI. J. Parasitol. 52(5): 988-1024, 143 figs. Oct. 1966. WR 131: 40
[Univ. Minn., St. Paul.]

Lloyd, H. G. OBSERVATIONS ON NUT SELECTION BY A HAND-REARED GREY SQUIRREL (SCIURUS CAROLINENSIS). J. Zool. (London) 155(2): 240-244. June 1968. WR 131: 40
[Ministry Agr., Fisheries & Food, Tangley Place, Worplesdon, Guildford, Surrey, England.]

Martinsen, David L. TEMPORAL PATTERNS IN THE HOME RANGES OF CHIPMUNKS (EUTAMIAS). J. Mammal. 49(1): 83-91, 1 fig. Feb. 1968. WR 131: 40
[Elmhurst Coll., Elmhurst, Ill.] Abstract: An observational study of chipmunks in Montana during two consecutive summers revealed marked changes from week to week in the sizes and shapes of the summer ranges of many individuals, and in the intensity of use of sites within the boundaries. The two most important factors responsible for such change were reproduction and the dispersion of the plants selected for food. The total summer range of most individual chipmunks remained the same from one summer to the next, and changing use within the observed boundaries was predictable and orderly for phenologically equivalent time spans of both summers. Such predictability substantiates the classical concept of home range. However, such changes, if they occur in most populations of small mammals, would necessitate time-qualified expressions of home range.

Nadler, C. F., and K. E. Harris. CHROMOSOMES OF THE NORTH AMERICAN PRAIRIE DOG CYNOMYS LUDOVICIANUS. Experientia (Switzerland) 23(1): 41-42. 15 Jan. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 40

Nixon, Charles M., D. Michael Worley, and Milford W. McClain. FOOD HABITS OF SQUIRRELS IN SOUTHEAST OHIO. J. Wildl. Mgmt. 32(2): 294-305. Apr. 1968. WR 131: 40
[Ohio Div. Wildl., New Marshfield.] Squirrel (Sciurus carolinensis and S. niger) food habits were investigated in southeast Ohio from March, 1962, through September, 1966, to determine the seasonally important food species and to relate these data to present timber management guides for the central hardwoods. The distribution of the 833 samples was: winter--60; spring--77; summer--144; fall--552. The important foods in decreasing order of occurrence were hickory nuts, beechnuts, acorns, fungi, black walnuts, plant leaves, yellow buckeye nuts, tuliptree samaras, flowering dogwood drupes, ironwood nuts, and hop hornbeam nuts. Hickory nuts, beechnuts, and acorns occurred in 75.8% of the samples and made up 67.4% of the total volume of foods eaten. Animal foods, chiefly insects, occurred in 15.1% of the samples but made up less than 2% of the total volume.--From abstr.

Queal, Leland M., and William R. Fouch. RESULTS OF FIRST EXPERIMENTAL EARLY SQUIRREL SEASON, ROSE LAKE WILDLIFE RESEARCH STATION, 1967. Mich. Dept. Conserv., Res. & Development Rept. no. 105. 8 p. Apr. 1967. WR 131: 40
[Mich. Dept. Conserv., Lansing.] The total harvest of 203 squirrels was 21.2% above the average of the previous 16 seasons. The longer season did not appear to be detrimental to the breeding population of squirrels.

Smith, Christopher C. THE ADAPTIVE NATURE OF SOCIAL ORGANIZATION IN THE GENUS OF TREE SQUIRRELS TAMIASCIURUS. Ecol. Monographs 38(1): 31-63, 13 figs. Winter 1968. WR 131: 40
[Smithsonian Trop. Res. Inst., Box 2072, Balboa, Canal Zone.] Establishment and defense territory, breeding behavior, parental care of young, and juvenile behavior of Tamiasciurus douglasii and T. hudsonicus are discussed. Food items are pine cambium and high-energy reproductive products of conifers, fungi, deciduous trees and bushes. Territory size is adjusted to food supply.--Courtesy/ Paul A. Stewart.

Smith, Michael C. RED SQUIRREL RESPONSES TO SPRUCE CONE FAILURE IN INTERIOR ALASKA. J. Wildl. Mgmt. 32(2): 305-317, 1 fig. Apr. 1968. WR 131: 41

[Canterbury Univ., Christchurch, New Zealand.] Abstract: Observations were made on a red squirrel (Tamiasciurus hudsonicus) population in mature white spruce (Picea glauca) forest near Fairbanks, Alaska, during 2 years of spruce cone crop failure (July, 1964, to April, 1966). An adequate supply of old spruce cones, cached in previous years, was available during the first winter. A 67% drop in numbers of the squirrel population followed the second crop failure with the remaining squirrels utilizing spruce buds as their primary food during the winter. Stomach analyses revealed spruce seed, when available, as the major constituent in the diet. In its absence, utilization of mushrooms in summer and spruce buds in winter is heavy. Feeding trials conducted with captive red squirrels in March, 1965, and April, 1966, showed that about 194 old spruce cones per day were necessary to sustain a squirrel, approximately 35% more than for cones from the current year's crop. Three squirrels survived for 8 days on a diet of only white spruce buds. Excavation of middens revealed up to 8,500 old, cached cones per midden, despite a crop failure. Squirrels may cut and cache 12,000 to 16,000 cones, the excess accruing annually, eventually creating a supply sufficient to maintain the squirrels through a winter following a cone crop failure.

Taylor, Jan C. THE USE OF MARKING POINTS BY GREY SQUIRRELS. J. Zool. 155 (2): 246-247 + 1 pl. June 1968. WR 131: 41

[Ministry Agr., Fisheries & Food, Tangley Place, Worplesdon, Guildford, Surrey, England.]

Todd, Kenneth S., Jr. LIFE CYCLES OF THREE SPECIES OF EIMERIA FROM THE UINTA GROUND SQUIRREL, SPERMOPHILUS ARMATUS. Ph.D. thesis, Utah State Univ. 101 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 41

The incidence of coccidia in a population of Spermophilus (Citellus) armatus, the life cycle and pathogenicity of the coccidia, and the host specificity of certain of the species of coccidia in S. armatus, S. richardsoni, S. variegatus, S. lateralis, S. columbianus, and S. beecheyi are discussed.

Wharton, Charles H. DISTRIBUTION OF THE RED SQUIRREL IN GEORGIA. J. Mammal. 49(1): 153-155, 1 fig. Feb. 1968. WR 131: 41

[Ga. State Coll., Atlanta.] "The red squirrel population in northern Georgia has diminished since 1900, with destruction of preferred habitat and food trees likely factors in their decline. Since the squirrel occurs in northern Georgia at low elevations and apparently feeds on now widespread conifers such as scrub and shortleaf pines, its failure to maintain or increase its population suggests that climactic trends or other factors may limit its distribution."

BEAVER

Brenner, Fred J. SPATIAL AND ENERGY REQUIREMENTS OF BEAVERS. Ohio J. Sci. 67(4): 242-246. July 1967. [From J. Mammal. 49(2), 1968.] WR 131: 41

Dottrens, E. SUR LA RÉINTRODUCTION DES CASTORS EN SUISSE. CASTORIANA II. [ON THE REINTRODUCTION OF THE BEAVER INTO SWITZERLAND. CASTORIANA II.] Acta Theriol. 10(8): 107-109. 15 Aug. 1965. In French with Russian and Polish summ. WR 131: 41

Larson, Joseph S. BEAVER RESEARCH IN APPALACHIAN MARYLAND. Atlantic Nat. 22(1): 5-12, illus. Jan.-Mar. 1967. WR 131: 41

[Univ. Md. Nat. Resources Inst., La Vale, Md.] Beaver repopulation in western Maryland has progressed rapidly both in numbers and rate of increase. A 1960 survey estimated more than 1,000 beaver in Garrett County alone.

Leege, Thomas A. BEAVERS ON THE MOVE. Idaho Wildl. Rev. 20(5): 14-16, illus. Mar.-Apr. 1968. WR 131: 42
[Idaho Fish & Game Dept., Boise.] In 1962 and 1963, traps were set on national forest lands in Idaho to determine beaver movements. Of the 192 beavers caught and tagged, 87 were recaptured. The calculated moving distance for 19 migrants found at least one airline mile from their tagging sites averaged 5.6 miles.

Novakowski, N. S. THE WINTER BIOENERGETICS OF A BEAVER POPULATION IN NORTHERN LATITUDES. Canadian J. Zool. 45: 1107-1118. 1967. WR 131: 42
[Canadian Wildl. Serv., Ottawa, Canada.] Castor c. canadensis is confined to subnivean existence for approximately 150 days each year in Alberta. Food caches were not sufficient for the energy requirements of the colonies, indicating that methods of energy conservation such as reduced activity, periods of dormancy, huddling, insulation from ambient temperatures by lodge construction, and an increase in fur insulation and fat deposition provide the necessary mechanisms for survival.

Palionene, A. [THE BEAVER IN THE LITHUANIAN S.S.R. CASTORIANA III.] Acta Theriol. 10(9): 111-116 + 3 figs. on 2 pls. 15 Aug. 1965. In Russian with Polish and English summ. WR 131: 42
Estimated population--1169 beaver.

Richard, P. B. STATUT ACTUEL DU CASTOR, CASTOR FIBER LINNAEUS, 1758 EN FRANCE. CASTORIANA I. [PRESENT STATUS OF THE BEAVER (CASTOR FIBER LINNAEUS, 1758) IN FRANCE. CASTORIANA I.] Acta Theriol. 10(7): 97-106, 1 fig. 15 Aug. 1965. In French with Polish, Russian and English summ. WR 131: 42
Distribution, habitat, reproduction, enemies, population, and protection of this species in France. The present population level is estimated between "some hundreds and one thousand."

Wijngaarden, Anne van. THE PRESENT STATUS OF THE EUROPEAN BEAVER, CASTOR FIBER LINNAEUS, 1758 AN INVESTIGATION WHICH WAS CARRIED OUT AT THE INSTIGATION OF THE "INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES (I.U.C.N.)." Acta Theriol. 10(6): 93-96. 15 Aug. 1965. In English with Polish summ. WR 131: 42

MUSKRAT & NUTRIA

Beckett, Joseph V., and Vincent Gallicchio. A SURVEY OF HELMINTHS OF THE MUSKRAT, ONDATRA Z. ZIBETHICA MILLER, 1912, IN PORTAGE COUNTY, OHIO. J. Parasitol. 53(6): 1169-1172. Dec. 1967. WR 131: 42
[Kent State Univ., Kent, Ohio.]

Cross, John H., and Richard M. Thomas. HYDATID DISEASE IN THE NUTRIA. J. Parasitol. 52(6): 1215-1216, 2 figs. Dec. 1966. WR 131: 42
[Univ. Ark., Little Rock.]

Debbie, John G. YELLOW FAT DISEASE IN MUSKRATS. N.Y. Fish & Game J. 15(1): 119-120. Jan. 1968. WR 131: 42
[N.Y. State Dept. Health, Albany.]

Hillbricht, Anna, and Lech Ryszkowski. INVESTIGATIONS OF THE UTILISATION AND DESTRUCTION OF ITS HABITAT BY A POPULATION OF COYPU--MYOCASTOR COYPUS MOLINA BRED IN SEMI-CAPTIVITY. Ecologia Polska--Ser. A 9(25): 505-524, 1 fig. 1961. In English with Polish summ. WR 131: 42
[Polish Acad. Sci., Warsaw, Poland.] Observations took place during a 3-year study on a fenced marshy area. The most attractive habitat for bed building was the boundary area between water and reeds. The second most attractive habitat was the center of the reeds and the boundary between reeds and sedge. Vegetation which had undergone 100% destruction did not show regrowth after three years. An increase in migratory wanderings was observed in the spring and autumn. Nitrophilous plants resistant to treading and poisonous plants grew in the areas with 80-100% destruction of the original vegetation.

Mathiak, Harold A. MUSKRAT POPULATION STUDIES AT HORICON MARSH. Wis. Conserv. Dept. Tech. Bull. no. 36. 56 p., illus. 1966. WR 131: 43

Research on muskrat populations was conducted from 1946 to 1963 on the 10,857-acre state-owned portion of Horicon Marsh, Wisconsin. The objective of this research was to gather biological data which would form a scientific and practical basis for muskrat management in the state. Muskrat population biology was studied mainly by following the fate of more than 6,000 muskrats ear-tagged as kits. Underharvesting is more of a problem than overharvesting. Low pelt prices and greatly increased development of wetlands for other wildlife indicate a greater need to develop muskrat control methods than to stimulate muskrat production. Muskrat research on Horicon Marsh points toward one policy: muskrats must be adequately harvested. Harvest regulations must be kept flexible to assure harvests in the face of wide yearly variations in muskrat numbers, water conditions, and weather during trapping seasons. Muskrat management has been greatly stimulated on private marshes by Wisconsin's fur-farm laws which encourage marsh development for fur production.--From abstr.

Wootton, Donald M., and K. Darwin Murrell. PTYALINCOLA ONDATRAE, GEN. ET SP. N. (TREMATODA: BRACHYLAIMIDAE), A FLUKE INHABITING THE SALIVARY GLANDS OF MUSKRATS. J. Parasitol. 53(4): 739-742, 1 fig. Aug. 1967. WR 131: 43

[Chico State Coll., Chico, Calif.]

BEARS

Eide, Sterling. THE NATURE OF BROWN BEAR PREDATION ON CATTLE, KODIAK ISLAND, ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 113-118. [1965.] WR 131: 43

[Alaska Dept. Fish & Game, Juneau.]

Harington, C. Richard. DENNING HABITS OF THE POLAR BEAR (URSUS MARITIMUS PHIPPS). Canadian Wildl. Serv. Rept. Ser.--no. 5. 30 p., 12 figs. 1968. Price 50¢. With French summ. WR 131: 43

Abstract: Common denning areas (core areas) for polar bears are northern Greenland, Svalbard, the archipelagos north of the Soviet mainland, and the islands of northern Canada. In autumn, bears are often rafted on broken pack ice to suitable denning places. Some experienced individuals probably find denning areas by their ability to navigate within a region. Site factors exert an important influence on the location of polar bear dens. Dens are usually excavated in the thick snowbanks that develop on leeward slopes of coastal hills and valley sides, and are characterized by entranceways leading to one or more rooms. Although polar bears of both sexes and various ages occupy dens, pregnant females seem to be most regular in this habit, commonly denning between October and April. The cubs, usually born in early December, are mature enough to leave the dens and travel with their mothers down to the sea ice by March or April. Core areas and denning habits require further investigation, so that polar bears can be more effectively safeguarded should any threat arise to their survival.

Kost'yan, E. Ya. NEW DATA ON THE REPRODUCTION OF POLAR BEARS. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 68-50386. 10 p., 3 figs. 1968. Russian original from Zool. Zhur. 33(1): 207-215. 1954. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 43

Nutrition, molting, and reproduction of Ursus (Thalassarctos) maritimus.

Lentfer, Jack W. BROWN BEAR HARVEST STATISTICS IN ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 134-139. [1965.] WR 131: 43

[Alaska Dept. Fish & Game, Anchorage.] Brown and grizzly bear harvest analysis for 1961-1964.

Lentfer, Jack W. A TECHNIQUE FOR IMMOBILIZING AND MARKING POLAR BEARS. J. Wildl. Mgmt. 32(2): 317-321. Apr. 1968. WR 131: 44
[Alaska Dept. Fish & Game, Anchorage.] Abstract: The Alaska Department of Fish and Game immobilized and marked 31 polar bears (Ursus maritimus) north of Point Barrow in April, 1967. Bears were located by tracking on the ocean ice with a helicopter. A fixed-wing plane assisted in locating bears and carried extra gasoline for the helicopter. Bears were immobilized with Sernylan (phencyclidine hydrochloride) delivered with a syringe gun from the helicopter. Both sexes and all age-classes encountered were immobilized. Bears receiving an adequate first injection of Sernylan were immobilized in from 3 to 13 minutes. Observed recovery times ranged from 0.5 to 3 hours. Bears were marked with ear tags, ear markers, tattoos, and collars.

Maser, Chris. BLACK BEAR DAMAGE TO DOUGLAS FIR IN OREGON. Murrelet 48(2): 34-38, 4 figs. May-Aug. 1967. WR 131: 44
[Oreg. State Univ., Corvallis.] Damage from Ursus americanus occurs to trees whose crown extends almost the length of the trunk and whose growth rate is rapid. Mechanics and identification of damage are also discussed.

Pierson, Douglas J. WASHINGTON'S BLACK BEAR PROBLEM. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 96-100. [1966.] WR 131: 44
[Wash. Dept. Game, Lacey.]

Russell, Findlay E. VITAMIN A CONTENT OF POLAR BEAR LIVER. Toxicon 5(1): 61-62. July 1967. [From J. Mammal. 49(1), 1968.] WR 131: 44

RACCOON, RINGTAIL, COATI

Lehman, Larry E. SEPTEMBER BIRTH OF RACCOONS IN INDIANA. J. Mammal. 49(1): 126-127. Feb. 1968. WR 131: 44
[Ind. Dept. Nat. Resources, Indianapolis.]

Locke, Louis N., and Emerson E. Brown. OCCURRENCE OF THE FLUKE, PROCYOTREMA MARSUPIFORMIS HARKEMA AND MILLER, 1959, IN A MARYLAND RACCOON. J. Parasitol. 51(3): 355. June 1965. WR 131: 44
[Patuxent Wildl. Res. Center, Laurel, Md.]

Mech, L. David, Donald M. Barnes, and John R. Tester. SEASONAL WEIGHT CHANGES, MORTALITY, AND POPULATION STRUCTURE OF RACCOONS IN MINNESOTA. J. Mammal. 49(1): 63-73, 2 figs. Feb. 1968. WR 131: 44
[Macalester Coll., St. Paul, Minn.] Abstract: A population of raccoons (Procyon lotor) in east-central Minnesota was studied from September 1964 through October 1966. Sixty-three individuals were radio-tagged, and an automatic tracking system monitored their presence in the population for 3367 raccoon days for yearlings and adults and 3518 days for juveniles. Data are presented on weight loss and mortality in this population. Juveniles, yearlings, and adults lost about half their weight during winter dormancy, and many juveniles died from starvation and parasitism, the most important mortality factors in this relatively unhunted population. Late winter and early spring were the most critical periods for juveniles. Limited data on population structure indicated an even ratio of yearlings to adults and an even sex ratio in yearlings and adults, although there was a heavy bias toward males in a sample of 20 raccoons born on the study area in 1965.

Montgomery, G. G. PELAGE DEVELOPMENT OF YOUNG RACCOONS. J. Mammal. 49(1): 142-145, 2 figs. Feb. 1968. WR 131: 44
[Univ. Minn., Minneapolis.]

Shoemaker, Jon P. OCCURRENCE OF MACRACANTHORHYNCHUS INGENS MEYER, 1933, IN A WEST VIRGINIA RACCOON. J. Parasitol. 52(2): 284. Apr. 1966. WR 131: 44
[Marshall Univ., Huntington, W. Va.]

Wallace, Robert A., and Billy G. Wilson. METAGONIMOIDES OREGONENSIS PRICE, 1931 (TREMATODA: HETEROPHYIDAE) FROM THE RACCOON IN MIDDLE TENNESSEE. J. Parasitol. 51(3): 391. June 1965. WR 131: 45
[Vanderbilt Univ., Nashville, Tenn.]

MUSTELIDS

Beckett, Joseph V., and Vincent Gallicchio. OCCURRENCE OF THE LUNG FLUKE, PARAGONIMUS KELLICOTTI WARD, 1908, IN OHIO MINK. J. Parasitol. 52(3): 511. June 1966. WR 131: 45
[Kent State Univ., Kent, Ohio.] "Mustela vison."

Cowlin, R. A. D. AN EXCAVATION OF A BADGER SETT IN SOUTHEND. Essex Nat. (London) 32(1): 70-72. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 45

Hartman, L. REPRODUCTION OF THE WEASEL, MUSTELA NIVALIS L., IN CAPTIVITY. Säugetierk. Mitteil. 12(2/3): 90-91. 1964. WR 131: 45
[DSIR, Wellington, New Zealand.] Observed gestation period was 36-37 days.

Hurrell, H. G. PINE MARTENS. Forestry Comm.: Forest Record no. 64. 23 p., 20 figs. 1968. Price 2s. 6d. WR 131: 45
Ranch-bred pine martens (Martes martes) at Devon, England, have been raised and observed under conditions approximating those of wild martens. Breeding behavior, feeding activity, communication by sound and scent, and jumping ability are discussed. The wild marten still occurs in the Lake District and in Ireland, Wales, and northern Scotland.

Kalkan, Ahmet, and M. F. Hansen. ANCYLOSTOMA TAXIDEAE SP. N. FROM THE AMERICAN BADGER, TAXIDEA TAXUS TAXUS. J. Parasitol. 52(2): 291-294, 8 figs. Apr. 1966. WR 131: 45
[Inst. Vet. Bacteriol., Etlik, Ankara, Turkey.]

Kenyon, K. W., C. E. Yunker, and I. M. Newell. NASAL MITES (HALARACHNIDAE) IN THE SEA OTTER. J. Parasitol. 51(6): 960. Dec. 1965. WR 131: 45
[Bur. Sport Fisheries & Wildl., Sand Point Naval Air Sta., Seattle, Wash.]

Levine, Norman D., Virginia Ivens, James R. Reilly, and Joseph Simon. FILAROIDES MILKSI (NEMATODA: FILAROIDIDAE) IN THE LUNGS OF A STRIPED SKUNK, MEPHITIS MEPHITIS. J. Parasitol. 51(4): 628-630, 2 figs. Aug. 1965. WR 131: 45
[Univ. Ill., Urbana.]

Lloyd, J. R. FACTORS AFFECTING THE EMERGENCE TIMES OF THE BADGER (MELES MELES) IN BRITAIN. J. Zool. (London) 155(2): 223-227. June 1968. WR 131: 45
[Sherborne School, Sherborne, Dorset, England.]

Marsh, Rex E., and William R. Clark. AN EFFECTIVE WEASEL TRAP. J. Mammal. 49(1): 157, 1 fig. Feb. 1968. WR 131: 45
(Univ. Calif., Davis.] A starling funnel trap baited with live decoy starlings was used to capture 27 weasels during one month.

Orihel, Thomas C. DIROFILARIA LUTRAE SP. N. (NEMATODA: FILARIOIDEA) FROM OTTERS IN THE SOUTHEAST UNITED STATES. J. Parasitol. 51(3): 409-413, 9 figs. June 1965. WR 131: 45
[Delta Regional Primate Res. Center, Covington, La.]

Platt, Austin P. SELECTIVE PREDATION BY A MINK ON WOODLAND JUMPING MICE CONFINED IN LIVE TRAPS. Am. Midland Nat. 79(2): 539-540. Apr. 1968. WR 131: 45
[Wesleyan Univ., Middletown, Conn.] Abstract: During six days of a small mammal live trapping study, a mink (Mustela vison) killed and ate at least nine woodland jumping mice (Napaeozapus insignis) confined in live traps; 22 individuals of four other species were left undisturbed in traps in the same restricted area.

MUSTELIDS--Continued

Rust, Charles C. PROCEDURE FOR LIVE TRAPPING WEASELS. J. Mammal. 49(2): 318-319. May 1968. WR 131: 46
[Univ. Wis. Center, Janesville.] Methods outlined were used to capture more than 300 weasels (Mustela erminea, M. frenata, and M. roxosa) during 1960-1967.

Schmidt, Gerald D. MOLINEUS MUSTELAE SP. N. (NEMATODA: TRICHOSTRONGYLIDAE) FROM THE LONG-TAILED WEASEL IN MONTANA AND M. CHABAUDI NOM. N., WITH A KEY TO THE SPECIES OF MOLINEUS. J. Parasitol. 51(2): 164-168, 7 figs. Apr. 1965. WR 131: 46
[Colo. State Coll., Greeley.]

Walton, K. C. THE DISTRIBUTION OF THE POLECAT, PUTORIUS PUTORIUS IN GREAT BRITAIN, 1963-67. J. Zool. (London) 155(2): 237-240, 2 figs. June 1968. WR 131: 46
[Ministry Agr., Fisheries & Food, Plas Crug, Aberystwyth, Cardiganshire, Wales.]

DOGS, WOLVES, FOXES

Besadny, C. D. WINTER FOOD HABITS OF WISCONSIN FOXES. Wis. Conserv. Dept. Res. Rept. no. 20 (Game). 47 p., 2 figs. Dec. 1966. WR 131: 46
Twenty-eight different identifiable mammals, 13 birds, 4 spp. of insects, a minimum of 15 plants and numerous miscellaneous items of low or no food value were eaten by foxes. Small rodents, mainly meadow and deer mice, occurred most frequently in the fox diet and were found in 53% of the stomach sample. Cottontail rabbits ranked second among the animal foods consumed, occurring in 46% of the stomachs examined. Game birds were found in low frequency (9%) in the winter diet. The relatively low percentage of game birds in the winter diet of Wisconsin foxes suggests that on a statewide basis, the long-term predatory influence of the fox may not be great. The high percentage of cottontail rabbits in the fox diet even in marginal range may indicate that the fox does exert some influence on annual rabbit population trends. A long-term ecological study of the entire predator-prey community is necessary if we are to fully understand the effects of predators on the prey population.--From abstr.

Fentress, John C. OBSERVATIONS ON THE BEHAVIORAL DEVELOPMENT OF A HAND-REARED MALE TIMBER WOLF. Am. Zool. 7(2): 339-351, 17 figs. May 1967. WR 131: 46
[Univ. Rochester, Rochester, N.Y.] Synopsis: Observations on the behavioral development of a male timber wolf, hand-reared from the age of four weeks, have been continued for a period of three years. Data include the following: (1) Adjustment to human companionship has been successful even after sexual maturity. (2) Behavior towards strange persons and objects is cautious. (3) The animal remains more independent and aloof to persons than similarly reared dogs. (4) Interaction with dogs, including males and young puppies, is marked by gregariousness and lack of aggression. (5) Small domestic species have been attacked occasionally, the response depending largely upon the behavior of these animals. (6) Large species are avoided, chased, or ignored. (7) Numerous motor patterns, postures, and communicative signals are closely similar to siblings and other wolves and contrast with dog companions. (8) Sharp behavioral changes occurred at 8 and 12 weeks, the former initiating aggressive tendencies, the latter extreme avoidance in the presence of new objects. Restlessness, then calming, followed in later months, and slight seasonal fluctuations have been noted. (9) Rudiments of many adult motor patterns occurred at an early age, e.g., small prey-pounces and pelvic thrusts seen by 8 weeks. (10) Vocalizations include a wide repertoire of howls, squeaks, growls, and barks.

Joslin, Paul W. B. MOVEMENTS AND HOME SITES OF TIMBER WOLVES IN ALGONQUIN PARK. Am. Zool. 7(2): 279-288, 7 figs. May 1967. WR 131: 47
[Univ. Aberdeen, Aberdeen, Scotland.] Ecological studies of timber wolves (Canis lupus) in a forested environment have always been difficult to undertake in the past, particularly during the summer months, because of the lack of a suitable technique. In 1960 Pimlott devised a technique which employed the use of broadcast wolf howls in locating wolves in the field. This report reviews the success of this technique in studying the movements of two packs of wolves, and their use of home sites in Algonquin Park, Ontario. Wolves responded by howling a total of 476 occasions or approximately 13% of the occasions that broadcast howls were given. Human imitations were more successful than tape-recordings in inducing responses. Wolves responded at any time of day, but dusk was the most favorable period. They also responded more frequently in July and August than in May and June.--From synopsis.

Kagan, Irving G., Lois Norman, and Paul D. Leiby. BIOLOGIC IDENTIFICATION OF THE CESTODE ECHINOCOCCUS MULTILOCULARIS ISOLATED FROM FOXES IN NORTH DAKOTA. J. Parasitol. 51(5): 807-808, 1 fig. Oct. 1965. WR 131: 47
[Communicable Disease Center, Atlanta, Ga.]

Kleiman, Devra G. SOME ASPECTS OF SOCIAL BEHAVIOR IN THE CANIDAE. Am. Zool. 7(2): 365-372. May 1967. WR 131: 47
[Zool. Soc. London, London, England.] Synopsis: Despite the diversity of morphology and ecology in members of the Canidae, social behavior remains similar throughout the family. Some specializations have occurred in group-living species, serving to maintain group cohesion and to reduce intraspecific aggression, and these changes in behaviors and postures have been ones of degree rather than kind. The type of specialization differs in each species and is probably related to its ecology. Thus, the bat-eared fox has developed contact behaviors such as social grooming while the wolf has evolved more specialized agonistic postures that are used in the maintenance of a social hierarchy.

Kolenosky, George B., and David H. Johnston. RADIO-TRACKING TIMBER WOLVES IN ONTARIO. Am. Zool. 7(2): 289-303, 4 figs. May 1967. WR 131: 47
[Southern Res. Sta., Maple, Ontario, Canada.] Miniature collar-type transmitters originally designed by W. W. Cochran [WR 117: 6] were adapted for use on timber wolves (Canis lupus sp.) in east-central Ontario. Wild timber wolves were captured in steel traps, restrained with a forked stick, fitted with radio-collars and released at point of capture. Receivers were adapted for use in trucks, airplanes, and for walking in rough bush country. Maximum ranges were 3.2 km with ground and 9.6 km with aircraft receivers. A preadult female tagged in July 1964, and a lactating adult female tagged in June 1965, were tracked intermittently for 5.5 and 2.5 months, respectively. Tracking periods for six other animals of both sexes, ranging in age from pups to adults, varied from 2 days to 4 months. Tagged animals were active throughout all periods of the day or night. Activity increased slightly during the early evening hours. There was a slight correlation between weather conditions and patterns of behavior and activity. Apparently, tagged individuals were quickly accepted by other members of the pack.--From synopsis.

Lawrence, Barbara, and William H. Bossert. MULTIPLE CHARACTER ANALYSIS OF CANIS LUPUS, LATRANS, AND FAMILIARIS, WITH A DISCUSSION OF THE RELATIONSHIPS OF CANIS NIGER. Am. Zool. 7(2): 223-232, 3 figs. May 1967. WR 131: 47
[Harvard Univ., Cambridge, Mass.]

Nellis, Carl H. SOME METHODS FOR CAPTURING COYOTES ALIVE. J. Wildl. Mgmt. 32(2): 402-405, 1 fig. Apr. 1968. WR 131: 47
[Univ. Wis., Madison.] Abstract: A snare was developed in Alberta for capturing coyotes (Canis latrans) alive because of the severe foot damage that often occurred when steel traps were used. At $1.10 each, snares are less expensive but less efficient than traps. We snared 26 coyotes. We also caught 14 from autoboggans by running the coyotes until they tired.

Pimlott, Douglas H. WOLF PREDATION AND UNGULATE POPULATIONS. Am. Zool. 7(2): 267-278. May 1967. WR 131: 48

[Univ. Toronto, Toronto, Canada.] Synopsis: Studies of the interaction of wolves and their prey during the past twenty years have demonstrated that ungulates are the primary prey of wolves both in winter and summer and that predation in summer tends to be concentrated on the young of the year while in winter it is concentrated on animals in older-age classes. There appears to be intrinsic control of wolf numbers and there is evidence which suggests that a wolf per 10 square miles may approach the maximum density that is attainable in most ranges. The adaptations between ungulates and their predators may have evolved in relatively stable forest environments which could not support high-density prey populations. This could explain why wolves do not appear to be capable of controlling moose and deer populations in environments that have been drastically altered by man.

Pulliainen, Erkki. A CONTRIBUTION TO THE STUDY OF THE SOCIAL BEHAVIOR OF THE WOLF. Am. Zool. 7(2): 313-317. May 1967. WR 131: 48

[Univ. Helsinki, Helsinki, Finland.] Synopsis: Three wolf cubs (♀ and 2 ♂♂) taken blind from their den were studied in captivity. When the cubs were 20-22 weeks old, their behavior was studied in the presence of individuals of two breeds of dogs (German Shepherd and Samoyed). The wolf cubs had seen no canine individuals before the experiments and vice versa. The sexes and ages of the German Shepherds (they resemble European forest wolves in appearance) tested were as follows: female (3 years), male (17 months), female (21 weeks; the same height as the wolf cubs) and female (12 weeks). The two female Samoyeds were 2 years old. All the tests were performed in the pen of the wolf cubs and filmed. The main results are as follows: (1). Investigative behavior was observed during all the tests carried out. (2). No aggressiveness was observed between the wolf cubs and those German Shepherds which were as tall as the wolf cubs or taller. By contrast, the wolf cubs tried to kill the smallest German Shepherd (12 weeks old). (3). Great aggressiveness was observed between the wolf cubs and the Samoyeds from the moment of confrontation. (4). No difference was observed in the movements and behavior patterns of these two species. (5). The results are discussed.

Rabb, George B., Jerome H. Woolpy, and Benson E. Ginsburg. SOCIAL RELATIONSHIPS IN A GROUP OF CAPTIVE WOLVES. Am. Zool. 7(2): 305-311, 6 figs. May 1967. WR 131: 48

[Chicago Zool. Park, Brookfield, Ill.] Synopsis: The social organization of a group of wolves in a large outdoor enclosure was followed through several breeding seasons. During the breeding season conflicts become more frequent and the social hierarchy obvious. The more dominant animals restrict courtship activities by inferior wolves of their own sex. However, apparently as a correlate of their position, two alpha males have shown less mating activity than other males. Mate preferences exhibited by animals of both sexes also limit the number of matings. The preferences appear related to the social hierarchy existing when an animal matures. Cultural transmission of social status is suggested by some changes in ranking of wolves raised in the woods at Brookfield. Temporary removal of the original alpha male and death of the original alpha female appear to have promoted changes in social order and an increase in actual mating combinations. The probable consanguineous nature of wolf groups and facets of the social behavior suggest that some form of group selection could be operative in the wild.

Rausch, Robert A. SOME ASPECTS OF THE POPULATION ECOLOGY OF WOLVES, ALASKA. Am. Zool. 7(2): 253-265, 3 figs. May 1967. WR 131: 48

[Alaska Dept. Fish & Game, Fairbanks.] Pregnant adult female wolves averaged 6.5 fetuses; two-year-old females averaged 5.3 fetuses; female pups not sexually mature. In Alaska, wolves conceive from late February through early April but most females breed in March. Multiparous females breed earlier than first breeders. Multiparous females produce an average of 7.3 ova and 6.5 implanted fetuses. The loss of ova from ovulation to implantation is significant. Multiparous females produce more ova than first breeders; the

difference is highly significant. Mortality of pups rather than the lack of initial production of pups is believed to be the reason for the observed variations in the proportion of pups in wolf populations. Wolf packs include members in all categories of sex and age during the breeding season. Size of the pack is an indicator of abundance.--From synopsis.

Schenkel, Rudolf. SUBMISSION: ITS FEATURES AND FUNCTION IN THE WOLF AND DOG. Am. Zool. 7(2): 319-329, 7 figs. May 1967. WR 131: 49

[Univ. Basel, Basel, Switzerland.] Synopsis: Submission in the wolf and dog is defined on the basis of its motivation: submission is the effort of the inferior to attain friendly or harmonic social integration. Submission functions as an appeal or a contribution to social integration, but only if it meets a corresponding attitude in the superior. The form of submissive behavior in wolf and dog is ritualized and symbolized cub-behavior. Two main forms of submissive behavior occur in wolf and dog: active submission, derived from begging for milk or food, and passive submission, derived from the posture which the cub adopts when cleaned by its mother. The definition of submission is generally applicable to vertebrates living in groups based on intimacy and a social hierarchical order. The concept of submission as the role of the defeated in the terminal phase of fight with the function to inhibit automatically aggression in the superior should be dismissed. In vertebrates at least three types of conflict with different terminal phases occur: (1). Severe fight based on intolerance; ends with flight by the inferior or with his death. (2). Ritualized fight over a privilege; ends with the "giving-up-the-claim ritual" of the inferior, which automatically blocks the aggression of the superior. (3). Minor conflict in closed groups; settled by submissive behavior of the inferior. In closed vertebrate groups, intermediate forms between (1) and (3) occur, depending on the proportion between activated intimacy and intolerance.

Scott, J. P. THE EVOLUTION OF SOCIAL BEHAVIOR IN DOGS AND WOLVES. Am. Zool. 7(2): 373-381. May 1967. WR 131: 49

[Bowling Green State Univ., Bowling Green, Ohio.] Synopsis: Patterns of social behavior in the family Canidae appear to be conservative traits in evolution. Darwin's concept of sexual selection may be broadened to "social selection," including all factors in the social environment which exert selection pressure. In a highly social species, the social environment tends to be stable, generation after generation, accounting for the stability of social behavioral patterns. The evolution of social behavior is also related to development, with different and sometimes opposite selection pressures acting at different periods in life. Some myths and misconceptions regarding dog-wolf behavior are described, and some problems for future research outlined.

Snow, Carol J. SOME OBSERVATIONS ON THE BEHAVIORAL AND MORPHOLOGICAL DEVELOPMENT OF COYOTE PUPS. Am. Zool. 7(2): 353-355. May 1967. WR 131: 49

[Univ. Wyo., Laramie.] Synopsis: The morphological and behavioral development of three litters (one male; two females; two males and two females) of coyotes reared in confinement is presented. The data include: patterns of behavior and associated morphological changes in ingestive, eliminative, contactual, and care-seeking processes; interactions among sibs and between adults and neonates; and the development of agonistic behavior in coyote pups.

Stanley, William C. HABITS OF THE RED FOX IN NORTHEASTERN KANSAS. Univ. Kans., Museum Nat. Hist. Misc. Publ. no. 34. p. 1-31, 3 figs., 3 pls. 21 Dec. 1963. WR 131: 49

Food habits, hunting habits, dens, reproduction, and parasites of Vulpes vulpes.

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Theberge, John B., and J. Bruce Falls. HOWLING AS A MEANS OF COMMUNICATION IN TIMBER WOLVES. Am. Zool. 7(2): 331-338. May 1967. WR 131: 50

[Univ. British Columbia, Vancouver, British Columbia, Canada.] The communicatory function of howling was studied in three adult male timber wolves (Canis lupus). Approximately 700 howls were subjected to spectrographic and auditory analysis. The fundamental frequency of howls was divided into beginning, mid-section, and ending, and each section was studied separately. Harmonic features were also examined. Much variation was found within the howls of each individual. However, unique features were found in all howls of two wolves, of potential value in individual recognition. Analysis of the circumstances in which spontaneous howling (no known auditory stimulation) occurred demonstrated that isolation resulted in increased howling. A form of long-distance communication is important to a social unit whose members are often separated. This study suggests that howling identifies the species, functions in the location of specific animals, provides specific information about the howling animal, and is, therefore, of great value in coordinating the social activities of wolves.--From synopsis.

Williams, Martin W., Howard A. Baldwin, and Charles S. Williams. BODY TEMPERATURE OBSERVATIONS ON A CAGED MEXICAN WOLF (CANIS LUPUS BAILEYI) BY REMOTE TELEMETRY. J. Mammal. 49(2): 329-331, 2 figs. May 1968. WR 131: 50

[Sensory Systems Lab., Tucson, Ariz.]

Woolpy, Jerome H., and Benson E. Ginsburg. WOLF SOCIALIZATION: A STUDY OF TEMPERAMENT IN A WILD SOCIAL SPECIES. Am. Zool. 7(2): 357-363, 1 fig. May 1967. WR 131: 50

[Univ. Chicago, Chicago, Ill.] Synopsis: A detailed analysis was made of the process by which the wolf comes from a state of unfamiliarity and fear of humans to a state of familiarity and friendliness. The nature of the process was found to depend on the age of the animal as well as the technique employed by the experimenter. Although young cubs were found to respond positively to almost any form of human contact, the older cubs and juveniles required much more time and effort to socialize, and fully matured adults offered very special problems which required specialized techniques to overcome. Periods beyond which no socialization could occur were not found. Wolves socialized as cubs had to be reinforced repeatedly in order to maintain their social bond with humans; however, adult wolves retained their socialized behavior even after being left with unsocialized animals and not handled for 18-22 months. Wolves socialized with the aid of tranquilizing drugs (chlorpromazine, librium, and reserpine) did not retain their socialization when the drugs were withdrawn on a variety of schedules. The development of fear responses as the animals grow older, and the association of fear with the unfamiliar, closely parallel the increasing difficulty of acquiring socialized behavior as well as the decreasing difficulty of retaining that behavior once it is acquired. Socialization is viewed as a conditioning process which must take place after the development and in the presence of the free expression of the subjective components of fear, a separable aspect of the general phenomenon of genetic wildness.

CATS

Hemmer, Helmut. UNTERSUCHUNGEN ZUR KENNTNIS DER LEOPARDEN (PANTHERA PARDUS) DES SÜDLICHEN AFRIKAS. [INVESTIGATIONS CONTRIBUTING TO THE KNOWLEDGE OF PANTHERA PARDUS OF SOUTH AFRICA.] Z. Säugetierk. 32(5): 257-266. Oct. 1967. [From J. Mammal. 49(2), 1968. In German with English summ.] WR 131: 50

Kirk, Gustav. WERDEN SPITZMÄUSE (SORICIDAE) VON DER HAUSKATZE (FELIS CATUS) ERBEUTET UND GEFRESSEN? [DO DOMESTIC CATS (FELIS CATUS) CAPTURE AND EAT SHREWS (SORICIDAE)?] Säugetierk. Mitt. 15(2): 169-170. June 1967. [From J. Mammal. 49(1), 1968. In German.] WR 131: 50

BIG GAME, GENERAL

Barker, Elliott S. WE DID THE IMPOSSIBLE! N. Mex. Wildl. 13(3): 10-11, illus. May-June 1968. WR 131: 51
From 1937-1953 more than 2,700 head of antelope were trapped and shipped to new areas; loss was not over 5%.

Beale, Donald M., and George W. Scotter. SEASONAL FORAGE USE BY PRONGHORN ANTELOPE IN WESTERN UTAH. Utah Sci. 29(1): 3-6, 16, 6 figs. Mar. 1968. WR 131: 51
[Utah Div. Fish & Game, Salt Lake City.] Investigation of a 10,000-acre fenced range includes study of relationships of antelope food habits to forage availability, water consumption, and antelope fawn production and survival. Antelope diet under good forage conditions consists of grass and forbs in early spring, forbs during late spring and summer, forbs and browse in the fall, and browse during winter.

Becklund, Willard W. NEMATODIRUS MACULOSUS SP. N. (NEMATODA: TRICHOSTRONGYLIDAE) FROM THE MOUNTAIN GOAT, OREAMNOS AMERICANUS, IN NORTH AMERICA. J. Parasitol. 51(6): 945-947, 9 figs. Dec. 1965. WR 131: 51
[Agr. Res. Center, Beltsville, Md.]

Becklund, Willard W., and Clyde M. Senger. PARASITES OF OVIS CANADENSIS CANADENSIS IN MONTANA, WITH A CHECKLIST OF THE INTERNAL AND EXTERNAL PARASITES OF THE ROCKY MOUNTAIN BIGHORN SHEEP IN NORTH AMERICA. J. Parasitol. 53(1): 157-165. Feb. 1967. WR 131: 51
[Agr. Res. Center, Beltsville, Md.] Included in this report is a checklist of 51 spp. from Ovis canadensis, based on the present report, unpublished records of specimens in the U.S. National Museum Helminthological Collection, and from the literature. Seventy per cent of these 51 spp. are known parasites of domestic sheep and 35% of cattle in North America.--From abstr.

Bergstrom, Robert C. SHEEP LIVER FLUKE, FASCIOLA HEPATICA L., 1758 FROM BUFFALO, BISON BISON (L., 1758) IN WESTERN WYOMING. J. Parasitol. 53(4): 724. Aug. 1967. WR 131: 51
[Univ. Wyo., Laramie.]

Bigalke, R. C. A NOTE ON REPRODUCTION IN THE STEENBOK RAPHICERUS CAMPESTRIS THUNBERG. Ann. Cape Provincial Museums 3: 64-67. 1963. WR 131: 51
Summary: Data on reproduction in a captive steenbok, Raphicerus campestris, is presented. Between September, 1960 and May, 1963 the animal bore six lambs. The shortest period between two successive births was 168 days and the longest 270 days but four out of five intervals were 177 days or less. A possible explanation of the 270 day period is suggested and the gestation period is presumed to be between 168 days or less and 177 days or less. There is good evidence for the occurrence of postparturient heat and of two seasonal breeding peaks, one at the end of the dry season or the beginning of the wet season and one at the end of the wet season or early in the dry season. Field observations are needed to confirm whether such peaks are of general occurrence in this species. Steenbok appear to lamb for the first time when one year old and under optimal conditions they produce two young per year.

Bigalke, R. D. COCCIDIOSIS IN ANTELOPES. Fauna & Flora no. 17. p. 38-41, 3 figs. 1966. WR 131: 51
[Vet. Res. Inst., Onderstepoort, South Africa.]

Capelle, Kenneth J. THE OCCURRENCE OF OESTRUS OVIS L. (DIPTERA: OESTRIDAE) IN THE BIGHORN SHEEP FROM WYOMING AND MONTANA. J. Parasitol. 52(3): 618-621, 3 figs. June 1966. WR 131: 51
[Bear River Res. Sta., Brigham City, Utah.]

Chaplin, Raymond E., and John Atkinson. THE OCCURRENCE OF UPPER CANINE TEETH IN ROE DEER (CAPREOLUS CAPREOLUS) FROM ENGLAND AND SCOTLAND. J. Zool. (London) 155(2): 141-144 + 2 pls. June 1968. WR 131: 52

[Passmore Edwards Museum, London, England.] Evidence for the presence of canine teeth was found in three of the seven populations sampled. It is concluded that the frequency of occurrence in most of the populations examined is very low except in one where it is of the order of 17%.--From abstr.

Christie, A. H. C. THE SENSITIVITY OF CHAMOIS AND RED DEER TO TEMPERATURE FLUCTUATIONS. Proc. New Zealand Ecol. Soc. 14: 34-39. Aug. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 52

Cross, James. APRIL CENSUSING OF A WINTERING ELK HERD. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 110-111. [1966.] WR 131: 52

[Mont. Fish & Game Dept., Ovando.]

Denney, Richard N. NECKBANDING TECHNIQUES WITH THE HELICOPTER. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 134-141. [1966.] WR 131: 52

[Colo. Game, Fish & Parks Dept., Fort Collins.] During the past three winters the Colorado Game, Fish and Parks Department has experimented with two neckbanding techniques on elk, using the helicopter. These methods are: (1) immobilizing elk with Cap-Chur equipment, and (2) jumping on elk in deep snow from the helicopter. A total of 61 elk have been immobilized, and 78 elk have been jumped, during this period. Each animal was neckbanded with four-inch wide colored collars and eartagged in both ears. The jumping method seems to be the most efficient, when suitable snow depths occur, and causes the least amount of stress and shock to the elk. Jumping has yielded 11 elk per hour, compared to three per hour with immobilization.--From summ.

DesMeules, Pierre. PROJET DE RESTAURATION DU CARIBOU DANS LE PARC DES LAURENTIDES. [RE-STOCKING PROJECT OF THE CARIBOU IN LAURENTIDES PARK.] Carnets de Zoologie 27(2): 20-24. 1967. In French. WR 131: 52

A total of 48 Rangifer tarandus were airlifted to Laurentides Provincial Park, Quebec, during a two-year restocking program in 1966-1967. Second-generation caribou were released into the park.

Forrester, Donald J., and Clyde M. Senger. BIGHORNS AND LUNGWORM. Mont. Wildl. p. 2-7, 11 figs. Apr. 1963. WR 131: 52

[Mont. State Univ., Missoula.] Popular review of information. Decreasing numbers of bighorns have led to studies of possible causes for the die-off.

Geist, Valerius. ON THE BEHAVIOUR AND EVOLUTION OF AMERICAN MOUNTAIN SHEEP. Ph.D. thesis, Univ. British Columbia. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 52

"To obtain a microfilm copy please order directly from the National Library of Canada at Ottawa." Effects of social behavior patterns on evolution of Ovis dalli stonei, O. d. dalli, and O. c. canadensis.

Greer, Kenneth R. FERTILITY RATES OF THE NORTHERN YELLOWSTONE ELK POPULATIONS. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 123-128. [1966.] WR 131: 52

[Mont. Fish & Game Dept., Bozeman.] "In summary, the females in the Northern Yellowstone elk populations have disclosed a very high incidence for pre-natal fertility but differences are apparent in postnatal survival. A maximum efficiency of survival expected from these age structures should be 75 to 85 per cent. Instead, this has been about 20 to 25 per cent for many years before the population was recently stimulated and survival has increased to 40 to 50 per cent."

Greer, Kenneth R., William W. Hawkins, Jr., and Jack E. Catlin. EXPERIMENTAL STUDIES OF CONTROLLED REPRODUCTION IN ELK (WAPITI). J. Wildl. Mgmt. 32(2): 368-376. Apr. 1968. WR 131: 53

[Mont. Fish & Game Dept., Bozeman.] Abstract: Thirty-six female elk, determined by rectal palpation to be pregnant, were injected intramuscularly with 75-200 mg repository type diethylstilbestrol during the period December to March (3 to 6 months' gestation). Only about 30% of the pregnancies were terminated, it was learned by postmortem examination. The pregnancies of two elk injected with estradiol cyclopentylpropionate in the 6th month of gestation were terminated. Chemosterilants are usually effective for the year of treatment; succeeding pregnancies may occur unless the treatment is repeated. Precautions must be taken when chemosterilants are used on big game animals that may possibly be harvested by hunters. Cervical dilations and placement of intrauterine devices were unsuccessful. Bilateral ovariectomy was successfully performed on 33 pregnant and nonpregnant elk. A few pregnant elk were ovariectomized during each month from December to April and the time of abortion following surgery varied. When the management techniques of hunting, trapping, control shooting, or poisoning are for some reason undesirable, it may be that under some conditions herd regulation can be accomplished more effectively, precisely, and economically by ovariectomizing a number of cows at intervals of several years.

Guilday, John E. ARCHAEOLOGICAL EVIDENCE OF CARIBOU FROM NEW YORK AND MASSACHUSETTS. J. Mammal. 49(2): 344-345. May 1968. WR 131: 53

[Carnegie Museum, Pittsburgh, Pa.]

Halloran, Arthur F. BISON (BOVIDAE) PRODUCTIVITY ON THE WICHITA MOUNTAINS WILDLIFE REFUGE, OKLAHOMA. Southwestern Nat. 13(1): 23-26. 28 May 1968. WR 131: 53

[Wichita Mountains Wildl. Refuge, Cache, Okla.] Abstract: Bison cows were individually marked and observed for calf production. Thirteen per cent had calves as two-year-olds. Most of the experimental animals gave birth to their first calf at three years of age. A high percentage of Wichita bison calve every other year. Butchered cow weights show lighter average weights in the autumn following the heavier calf crops of the third, fifth, and seventh years. A limited field experiment on fertility of bison bulls is described. Figures of herd production since 1908, twinning, and first calf arrival dates are briefly discussed.

Harper, James A. MOVEMENT AND ASSOCIATED BEHAVIOR OF ROOSEVELT ELK IN SOUTHWESTERN OREGON. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 139-141. [1964.] WR 131: 53

[Oreg. State Game Comm., Portland.] "In summary, the movement of elk is affected by food availability, topography, and weather. The movements vary from the daily wandering of feeding animals through the interchange of animals between herds, to the far-reaching wanderings of bulls in the fall and spring months. Sixty-three percent of the observations of tagged animals were recorded less than one mile from the point of tagging. Only one percent of these animals had moved more than five miles."

Henry, Vernon G. LENGTH OF ESTROUS CYCLE AND GESTATION IN EUROPEAN WILD HOGS. J. Wildl. Mgmt. 32(2): 406-408. Apr. 1968. WR 131: 53

[Tenn. Game & Fish Comm., Tellico Plains.] Abstract: A vasectomized European wild hog (Sus scrofa) boar was placed daily with pen-reared sows and the length of estrous cycle and heat period recorded. Thirty-four estrous cycles recorded for sows under crowded conditions averaged 23.8 days in length, 53% lasting between 21 and 23 days. Eleven estrous cycles recorded for sows individually housed averaged 21.8 days; 64% were 21 to 23 days in length. The normal length of the estrous cycle is therefore 21 to 23 days, but irregular cycles are common. Of 82 heat periods recorded, 44 were two days, 29 were one day, and 9 were three days in length. Thus the heat period is approximately 48 hours. Fertile boars were placed with captive sows and the breeding dates and litter birth dates were recorded. Two of 43 recorded gestational periods

were discarded; the remaining 41 averaged 115.2 ± 2.3 days. The most frequent gestational length recorded was 115 days, comparable to that of domestic hogs, and averaged only 1 day longer. The range of 108-120 was not as great as for domestic hogs, 80% of the observations falling between 114 and 118 days.

Hibbs, L. Dale, and Fred A. Glover. ECOLOGY OF THE MOUNTAIN GOAT IN COLORADO. Colo. Coop. Wildl. Res. Unit Tech. Pap. 2. 4 p. June 1965. WR 131: 54

Hlavachick, Bill D. FOODS OF KANSAS ANTELOPES RELATED TO CHOICE OF STOCKING SITES. J. Wildl. Mgmt. 32(2): 399-401. Apr. 1968. WR 131: 54
[Kans. Forestry, Fish & Game Comm., Hays.] Abstract: Forage habits of Kansas antelopes (Antilocapra americana) were investigated from September, 1963, to August, 1964. A total of 323 minutes of antelope feeding time were recorded on 13 spp. of plants at 10 stations during the summer, fall, and winter. Forbs accounted for 36% of the observed antelope diet, browse 2%, cactus 40%, and grasses 22%. No accurate estimate of winter wheat consumption could be made, but antelopes spend considerable time on winter wheat in the late fall, winter, and spring. The selection of transplant sites in Kansas will not be restricted to areas where browse is available but can include sites where forbs, cactus, and grass are abundant. In several such areas, cooperative transplant agreements have been made. The presently occupied range of roughly 250,000 acres appears able to support several hundred antelopes.

Hoogstraal, Harry, Glen M. Kohls, and Dale W. Parrish. STUDIES ON SOUTHEAST ASIAN HAEMAPHYSALIS TICKS (IXODOIDEA, IXODIDAE). H. (KAISERIANA) PSALISTOS SP. N., A PARASITE OF DEER AND BOARS IN LUZON, PHILIPPINES. J. Parasitol. 53 (5): 1096-1102, 28 figs. Oct. 1967. WR 131: 54
[U.S. Naval Med. Res. Unit No. 3, Cairo, Egypt.]

Houston, Douglas B. THE SHIRAS MOOSE IN JACKSON HOLE, WYOMING. Grand Teton Nat. Hist. Assoc. Tech. Bull. no. 1. 110 p., 15 figs. 1968. WR 131: 54
A total of 25 months was spent in the field from Sept. 1963 to Mar. 1967 studying habitat relationships, life habits, and population dynamics of Alces alces shirasi. Parasites, diseases, and predation of moose, and moose management suggestions are included in the discussion.

Huff, Clair L. UTAH'S BIG GAME RANGE INVENTORY--A STEP TOWARDS HABITAT MANAGEMENT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 67-71. [1966.] WR 131: 54
[Utah State Dept. Fish & Game, Hooper.]

Janson, Reuel G. MOVEMENTS OF TRANSPLANTED YELLOWSTONE ELK IN WEST-CENTRAL MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 107-109. [1966.] WR 131: 54
[Mont. Fish & Game Dept., Missoula.]

Jonez, Al. TROPHY HUNTING FOR BIGHORN SHEEP. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 72-75. [1966.] WR 131: 54
[Nev. Dept. Fish & Game, Reno.]

Kettlitz, W. K. THE DISTRIBUTION OF SOME OF THE LARGER GAME MAMMALS IN THE TRANSVAAL (EXCLUDING THE KRUGER NATIONAL PARK). Ann. Cape Provincial Museums 1962(2): 118-137, 15 figs. 1962. WR 131: 54
[Transvaal Dept. Nat. Conserv., Pretoria, S. Africa.] Population and distribution of 24 spp.

Kettlitz, W. K. THE BLESBOK (DAMALISCUS DORCAS PHILLIPSI) WITH SPECIAL REFERENCE TO THE HERD IN THE PERCY FYFE NATURE RESERVE. Flora & Fauna no. 18. p. 36-46, 2 figs. 1967. WR 131: 54
Geographical distribution, habitat, behavior, weights, age, reproduction, sex ratios, economic value, hybridization, trapping and general notes on the blesbok with supplementary material on the herds in the Percy Fyfe Nature Reserve.

Khan, Mohd., and Momin Khan. POPULATION TRENDS OF DEER IN PERAK AS SEEN FROM LICENSEE REPORTS. Malayan Nat. J. 20(1-2): 24-26. Mar. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 55
"Cervus unicolor, Muntiacus muntjak, and Capricornis sumatraensis."

Klein, David R. THE INTRODUCTION, INCREASE, AND CRASH OF REINDEER ON ST. MATTHEW ISLAND. J. Wildl. Mgmt. 32(2): 350-367, 6 figs. Apr. 1968. WR 131: 55
[Alaska Coop. Wildl. Res. Unit, College.] Abstract: Reindeer (Rangifer tarandus), introduced to St. Matthew Island in 1944, increased from 29 animals at that time to 6,000 in the summer of 1963, and underwent a crash die-off the following winter to less than 50 animals. In 1957, the body weight of the reindeer was found to exceed that of reindeer in domestic herds by 24-53% among females and 46-61% among males. The population also responded to the high quality and quantity of the forage on the island by increasing rapidly due to a high birth rate and low mortality. By 1963, the density of the reindeer on the island had reached 46.9 per square mile and ratios of fawns and yearlings to adult cows had dropped from 75 and 45% respectively, in 1957 to 60 and 26% in 1963. Average body weights had decreased from 1957 by 38% for adult females and 43% for adult males and were comparable to weights of reindeer in domestic herds. Lichens had been completely eliminated as a significant component of the winter diet. Sedges and grasses were expanding into sites previously occupied by lichens. In the late winter of 1963-64, in association with extreme snow accumulation, virtually the entire population of 6,000 reindeer died of starvation. With one known exception, all of the surviving reindeer (42 in 1966) were females. The pattern of reindeer population growth and die-off on St. Matthew Island has been observed on other island situations with introduced animals and is believed to be a product of the limited development of ecosystems and the associated deficiency of potential population-regulating factors on islands. Food supply, through its interaction with climatic factors, was the dominant population regulating mechanism for reindeer on St. Matthew Island.

Larsen, Parry. SOME BASIC REPRODUCTIVE CHARACTERISTICS OF PRONGHORN ANTELOPE IN NEW MEXICO. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 142-145. [1964.] WR 131: 55
[N. Mex. Dept Game & Fish, Roswell.]

Lent, Peter C. CALVING AND RELATED SOCIAL BEHAVIOR IN THE BARREN-GROUND CARIBOU. Ph.D. thesis, Univ. Alberta. 220 p. 1964. WR 131: 55

Lyon, L. Jack, and Peter F. Stickney. TWO FOREST FIRES: AND SOME SPECIFIC IMPLICATIONS IN BIG-GAME HABITAT MANAGEMENT. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 181-193. [1966.] WR 131: 55
[U.S. Forest Serv., Missoula, Mont.] Comparison of the two fires described leads to a number of conclusions about the potential use of fire as a wildlife-habitat management tool in the northern Rockies. Neal Canyon demonstrates, first, that fire can be successfully employed to restore or improve a declining shrub range. At the same time, Sleeping Child demonstrates the possibility of disastrous failure. Somewhere between these two extremes is a wide variety of sites on which perceptible improvement in wildlife habitat might be achieved without significant damage to other resources.--From concl.

Macgregor, W. G., and Jack Hiehle. BIG GAME LOSSES ASSOCIATED WITH WATER DEVELOPMENTS. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 119-121. [1965.] WR 131: 55
[Calif. Dept. Fish & Game, Sacramento.]

Markgren, Gunnar. A STUDY OF HAND-REARED MOOSE CALVES. Viltrevy 4(1): 1-42, 11 figs. 1966. In English with Swedish summ. WR 131: 55
Rearing, development and behavior patterns (feeding, "imprinting", flight aggression, play and reactions to weather) in Alces alces.

Martinka, C. J. A DIFFERENTIAL HUNTER HARVEST OF PRONGHORN ANTELOPE IN MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 116-122. [1966.] WR 131: 56

[Mont. Fish & Game Dept., Havre.] Differential hunter harvest of pronghorn antelope was studied in Montana by comparing results of routine summer aerial classifications and hunter check stations where both were available for similar areas and years. Fourteen sets of data from ten pronghorn management units provided population and harvest samples of 27,843 and 1,304 pronghorns, respectively, from 1959 through 1965. The average summer population composition from these units was 23, 41 and 36 per cent adult males, adult females and fawns, respectively, while the average composition of the fall harvest was 51, 26 and 23 per cent adult males, adult females and fawns, respectively.--From summ.

Mazzoni, Joseph P. RANGE AND BIG GAME MANAGEMENT AT THE NATIONAL BISON RANGE. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 101-106. [1966.] WR 131: 56

[Natl. Bison Range, Moiese, Mont.]

McConnell, Burt R. ESTIMATING DEER AND ELK PELLET GROUP DENSITY FROM FREQUENCY COUNTS. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 159-167. [1967.] WR 131: 56

[Pacific NW Forest & Range Expt. Sta., La Grande, Oreg.]

McGowan, Terry A. CARIBOU STUDIES IN NORTHWESTERN ALASKA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 57-66. [1966.] WR 131: 56

[Alaska Dept. Fish & Game, Anchorage.] The 1965 caribou harvest from the Arctic herd exceeded the harvest of all other big game species in Alaska (moose, deer, walrus, black, brown, grizzly, and polar bears, sheep, goat, elk, and bison). The arctic caribou harvest in 1963 and 1964 approximately equaled the total harvest of all other big game species. The Arctic herd has increased in recent years and the highest harvest recorded is under 10% of the estimated total population. Under this relatively low harvest the population can be expected to reach a maximum population level if this point hasn't already been reached. This herd has brucellosis at the epidemic level (15 to 20% compared to 1 to 4% in southcentral Alaska) and the animals are smaller and usually in poorer condition or at least were in 1963 and 1964, than caribou in more southerly herds.--From concl.

Mitchell, H., R. Ritcey, K. Mundy, and D. Robinson. VARIATIONS IN MOOSE POPULATIONS OF BRITISH COLUMBIA. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 133-138. [1964.] WR 131: 56

[British Columbia Fish & Game Branch, Victoria, B.C., Canada.]

Moran, Richard J. SOME MOVEMENT PATTERNS OF MICHIGAN ELK. Paps. Mich. Acad. Sci., Arts & Letters 53: 29-35. 1968. WR 131: 56

[Mich. Dept. Conserv., Lansing.] "Cervus canadensis nelsoni."

Neiland, Kenneth A. SOME DISEASES AND PARASITES OF ALASKAN BIG GAME UNGULATES. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 105-112. [1965.] WR 131: 56

[Alaska Dept. Fish & Game, Juneau.] A brief synopsis of wildlife disease and parasite research in Alaska with a more detailed accounting of a few better known problems encountered in ungulates.

Nielson, A. E., and W. M. Shaw. A HELICOPTER-DART GUN TECHNIQUE FOR CAPTURING MOOSE. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 183-199, 3 figs. [1967.] WR 131: 56

[Idaho Fish & Game Dept., Boise.] "Helicopter time averaged 0.73 hours per moose tagged and released at an average cost of $61.71 each. For the 92 moose marked and ear tagged, not including two calves marked by other means, 53 sightings and/or tag recoveries have been made. Average distance animals were sighted from trapping area was approximately 21 miles."

Peek, J. M. COMPARISON OF TWO MID-WINTER ELK HUNTING SEASONS, UPPER GALLATIN DRAINAGE, MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 87-95. [1966.] WR 131: 57

[Mont. Dept. Fish & Game, Gallatin Gateway.] Number of permittees hunting and hunter success were evaluated in relation to hunter origin and weather conditions. Number, sex, age and location of elk killed were compiled for the two seasons. Life expectancies were determined for each sex based on examination of 644 jaws collected from the 1965 season.--From abstr.

Petrides, George A. THE MANAGEMENT OF WILD HOOFED ANIMALS IN THE UNITED STATES IN RELATION TO LAND USE. Terre & Vie 1961(2): 181-202, 4 figs. 1961. WR 131: 57

[Mich. State Univ., East Lansing.] The bison, pronghorn, bighorn sheep, caribou, muskox, and javelina have become markedly reduced in total numbers, while the mule deer and whitetail deer have increased both their distributional limits and their abundance. Elk and moose have increased within reduced geographical range. The mountain goat and Dall sheep have not changed much either in distribution or abundance. Changes in abundance and distribution are correlated largely with the land use changes which have taken place since settlement began in the United States.

Petrides, G. A., and W. G. Swank. ESTIMATING THE PRODUCTIVITY AND ENERGY RELATIONS OF AN AFRICAN ELEPHANT POPULATION. Proc. 9th Internatl. Grasslands Congress, São Paulo, Brazil, Jan. 1965. p. 831-842, 2 figs. 1966. In English with Portuguese summ. WR 131: 57

[Mich. State Univ., East Lansing.] Summary: Elephants in Queen Elizabeth National Park, Uganda, were censused repeatedly during a sequence of rainy and dry seasons on study plots totalling 28.5 square miles (7381.5 hectares). The animals also were tallied by sex and size during the monthly counts. Combining these and other field data with published information, it was possible to determine the increment in population biomass for each age group and, hence, to estimate the production rate for the entire population. In kilocalories per square meter per year, the standing crop of elephants was measured as 7.1, available food as 747.0, food consumed as 71.6, feces as 48.3, growth as 0.34, and maintenance metabolism as 23.0. Using these figures, efficiency ratios determined for the elephant were compared with similar data for the whitetail deer and meadow mouse in the north-central United States. Production rates for beef cattle also were compared. The elephant eats relatively little per unit of body weight and its assimilation is poor, yet it maintains a phenomenally high standing crop. Though its growth rate is low, its production of biomass per unit area is nevertheless four-tenths that of beef cattle and it manages this on a coarse diet. Because of limited food requirements per unit biomass of elephants, there is danger of overuse and damage to the range if these animals are replaced by an equal biomass of smaller herbivores which have greater caloric-intake requirements per unit of weight. Total values of the elephant in digging water-holes, and in converting poor forage into meat and tourist income are summarized. Its potential for meat production in some areas of the world may be greater than is true for the domestic livestock presently produced there. The calculated rate of hunting kill which can be sustained is computed to be 4.8% of the biomass standing crop. Where the kill is restricted to adults, only about 2.6% of all elephants should be harvested per year.

Pfeffer, Pierre. LE MOUFLON DE CORSE (OVIS AMMON MUSIMON SCHREBER, 1782); POSITION SYSTEMATIQUE, ECOLOGIE ET ETHOLOGIE COMPAREES. [THE CORSICAN MOUFLON (OVIS AMMON MUSIMON SCHREBER, 1782); SYSTEMATIC POSITION, COMPARATIVE ECOLOGY AND ETHOLOGY.] Mammalia (suppl.) 31. 262 p. 1967. [From J. Mammal. 49(1), 1968. In French.] WR 131: 57

Prenzlow, Edgar J. DOE-KID BEHAVIOR OF PRONGHORNS IN NORTHCENTRAL COLORADO. Colo. Coop. Wildl. Res. Unit, Tech. Pap. 1. 7 p. Aug. 1964. WR 131: 57

Rausch, Robert A., and Arthur Bratlie. ANNUAL ASSESSMENTS OF MOOSE CALF PRODUCTION AND MORTALITY IN SOUTHCENTRAL ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 140-146. [1965.] WR 131: 58
[Alaska Dept. Fish & Game, Juneau.]

Rausch, Robert A., Arthur Bratlie, Patricia Crow, and Jack Didrickson. MANAGEMENT OPPORTUNITIES DERIVED FROM A MANDATORY MOOSE HARVEST REPORT SYSTEM IN ALASKA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 112-115. [1966.] WR 131: 58
[Alaska Dept. Fish & Game, Juneau.]

Simmons, Norman N. DAILY AND SEASONAL MOVEMENTS OF POUDRE RIVER BIGHORN SHEEP. M.S. thesis, Colo. State Univ. 180 p. 1961. WR 131: 58
Daily and seasonal movements of Poudre River bighorn sheep were studied and related to weather changes, topographic characteristics, vegetative characteristics, the presence of other animal species, and the availability of food, minerals and water. Data were collected primarily during the spring and summer months of 1960.--From abstr.

Stevens, David R. THE RECOVERY OF A MAJOR MOOSE RANGE IN SOUTHWESTERN MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 76-86. [1966.] WR 131: 58
[Mont. Fish & Game Dept., Bozeman.] Summary: Since earlier studies from 1958 to 1962 a badly deteriorated moose range in southwestern Montana has shown considerable recovery. Through the use of the Key Browse Survey method the condition of willow, bog birch, and silverberry on the winter and summer ranges was studied quantitatively and the changes demonstrated. Apparently the moose herd was reduced to a level near the range capacity or below through hunter harvest and other losses. Reproduction in the herd has apparently increased as a result of the improved level of nutrition and the population is probably increasing at the present time.

Stewart, D. R. M., and D. R. P. Zaphiro. BIOMASS AND DENSITY OF WILD HERBIVORES IN DIFFERENT EAST AFRICAN HABITATS. Mammalia 27(4): 483-496. Dec. 1963. In English with French summ. WR 131: 58
Acacia-Themeda tree-grassland is the most productive vegetation type in Kenya. Other forms of tree-grassland are nearly as productive. Highland grassland has only a third, and desert grassland a tenth, of the carrying capacity of Acacia-Themeda grassland.--From summ.

Taylor, R. H., and W. B. Magnussen. PRELIMINARY NOTE ON CAPTURE AND MARKING OF WILD UNGULATES IN NEW ZEALAND. New Zealand J. Sci. 8(2): 205-213, 2 figs. June 1965. WR 131: 58
[DSIR, Lower Hutt, New Zealand.] Succinylcholine chloride was the most satisfactory of the immobilizing drugs tested on red deer (Cervus elaphus). Self-attaching collars and collars of white plastic were used to mark adult animals.

Taylor, R. H., and W. B. Magnussen. MARKING CAPTURED DEER FOR FIELD STUDIES. New Zealand J. Sci. 10(3): 744-751. Sept. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 58

Telfer, Edmund S. DISTRIBUTION AND ASSOCIATION OF MOOSE AND DEER IN CENTRAL NEW BRUNSWICK. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 41-69, 11 figs. 1968. WR 131: 58
[Canadian Wildl. Serv., P.O. Box 486, Fredericton, New Brunswick.] Abstract: In 36 inches or more of soft snow moose will concentrate in shelter-providing forest cover types, in much the same way that white-tailed deer will at depths from 12 to 20 inches. Winter feeding damage by ungulates to forest regeneration is liable to be most severe adjacent to shelter types and least severe in the midst of large cut-overs. Cuttings to produce winter food should be adjacent to suitable shelter types. Deer and moose were found to use different forest cover types in January. In March they were both in shelter-providing types,

but not in the same places within the types. In June both species were using most habitat types and their association was about as would be expected by chance. About 13% of the moose trails observed in June were in areas used by deer for yarding in March. This suggests that one moose in eight was particularly liable to infection by the parasite Pneumostrongylus tenuis, the probable causitive agent of "moose sickness."

Telfer, Edmund S. THE STATUS OF MOOSE IN NOVA SCOTIA. J. Mammal. 49(2): 325-326, 1 fig. May 1968. WR 131: 59

[Canadian Wildl. Serv., Box 486, Fredericton, New Brunswick.] Aerial surveys indicated that slightly more than 0.2 moose per square mile were found in the total occupied moose range. This is about one fifth of the density estimated from harvest figures.

Thomas, Earl. STATE COOPERATION IN NATIONAL PARK GAME MANAGEMENT. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 87-92. [1965.] WR 131: 59

[Wyo. Dept. Fish & Game, Cheyenne.] Cooperative elk management program.

Turner, Fred. ELK HUNTS, 1967. N. Mex. Wildl. 13(3): 4-5, 22, illus. May-June 1968. WR 131: 59

N. Mex. elk hunters harvested 623 elk on 6 wildlife areas in 1967.

Vanoli, Th. BEOBACHTUNGEN AN PUDAS, MAZAMA PUDU (MOLINA, 1782). [RESEARCH UPON MAZAMA PUDU (MOLINA, 1782).] Säugetierk. Mitt. 15(2): 155-163. June 1967. [From J. Mammal. 49(1), 1968. In German with English summ.] WR 131: 59

van Zyl, J. H. M. EMBRYONIC IMPLANTATION IN THE SPRINGBOK (ANTIDORCAS MARSUPIALIS MARSUPIALIS (ZIMMERMANN)) AND OVULATION IN THE S.A. BUFFALO (SYNCERUS CAFFER CAFFER (SPARRMAN)) IN THE S.A. LOMBARD NATURE RESERVE, BLOEMHOF, TRANSVAAL. Flora & Fauna no. 17. p. 37. 1966. WR 131: 59

Weir, J., and E. Davison. DAILY OCCURRENCE OF AFRICAN GAME ANIMALS AT WATER HOLES DURING DRY WEATHER. Zool. Africana 1(2): 353-368, 12 figs. 1965. WR 131: 59

[Univ. Coll. Rhodesia & Nyasaland, Salisbury, Rhodesia.] Census of 14 spp. on a 24-hour basis. The 10 spp. of herbivores can be divided into four groups: buffalo, zebra and giraffe--evening and night drinkers; wildebeest and eland--night and morning; kudu, sable, roan and warthog--daytime; and elephant--all hours with a peak occurring between 1600 and 0200 hours.

Zhigunov, P. S., editor. REINDEER HUSBANDRY. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 67-51247. iv + 348 p., 84 figs. 1968. Russian original published by Izdat. Sel'skokhoz. Literatury Zhur. & Plakatov (Moscow) in 1961. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 59

Contents: General outline of the anatomy and physiology of reindeer, L. D. Nikolaevskii; Reindeer hygiene, L. D. Nikolaevskii; Management and breeding of reindeer, B. V. Preobrazhenskii; Reindeer fodder resources, G. I. Karaev; The utilization of reindeer lands, P. S. Zhigunov; Reindeer in haulage and commercial hunting, S. P. Popov; Slaughter of reindeer, primary processing, storage and transportation of the products, S. P. Popov; Diseases of reindeer, L. D. Nikolaevskii; Control of warble flies and bloodsucking diptera, D. V. Saval'ev; Control of harmful predators, V. P. Mokridin; Breeding herd dogs, K. V. Mokridina, and Farm buildings and structures, N. O. D'yachenko.

DEER (Odocoileus)

Andrews, R. D., and J. C. Calhoun. CHARACTERISTICS OF A WHITE-TAILED DEER POPULATION IN ILLINOIS. Ill. Dept. Conserv. Game Mgmt. Rept. no. 1. 8 p., 3 figs. 1968. WR 131: 60

[Eastern Ill. Univ., Charleston.] Data on distribution of kills and age structure of deer harvested in Pope County, Ill. from 1957 through 1966 are used to estimate population density of the herd for the county. Population increased from about 700 in 1957 to about 4,600 in 1964; it declined in 1965 and 1966 to an estimated 3,600 deer.--From abstr.

Barick, Frank. A SPECIAL REPORT ON THE 1967 EITHER SEX DEER HUNT. Wildl. in N.C. 32(6): 6-7. June 1968. WR 131: 60

[Wildl. Resources Comm., Box 2919, Raleigh, N.C.] Hunter quotas for wildlife management areas were filled by computer for the 1967 one-day either sex deer hunt in N.C. The hunt required fewer than 8 hunter-days per kill, compared with the long-time average of 10.

Becklund, Willard W., and Martha L. Walker. NEMATODIRUS ODOCOILEI SP. N. (NEMATODA: TRICHOSTRONGYLIDAE) FROM THE BLACK-TAILED DEER, ODOCOILEUS HEMIONUS, IN NORTH AMERICA. J. Parasitol. 53(2): 392-394, 10 figs. Apr. 1967. WR 131: 60

[Agr. Res. Center, Beltsville, Md.]

Bennett, C. L., Jr. THE 1967 DEER PELLET GROUP SURVEYS. Mich. Dept. Conserv. Res. & Development Rept. no. 121. 50 p., 2 figs. 23 Aug. 1967. WR 131: 60

Mechanical and computational details are given for the 1967 deer pellet group surveys in the northern two-thirds of Mich.

Carpenter, Max. VITAL STATISTICS OF A DEER HERD. Va. Wildl. 29(5): 8-9, illus. May 1968. WR 131: 60

A total of 289 Odocoileus virginianus were stocked in Rockingham Co., Va., during 1933-1943. More than 17,000 deer have been harvested from the herd in the past 21 years.

Chamrad, Albert D., and Thadis W. Box. FOOD HABITS OF WHITE-TAILED DEER IN SOUTH TEXAS. J. Range Mgmt. 21(3): 158-164, 4 figs. May 1968. WR 131: 60

[Texas A & M Univ., College Station.] Highlight: White-tailed deer were primarily grazers, rather than browsers, during the winter-spring periods of 1963, 1964, and 1965, in South Texas. There were only minor differences in distribution of major forage classes in deer diets from distinct range site groups, but major differences existed in species composition of diets in relation to site. Complexity of diet reduced the importance of any one or several species in the diet. Among high priority forage species, perennials were more important than annuals. Deer food habits varied according to availability and phenology of range vegetation, and were further modified by forage preferences.

Cromer, Jack I., and H. Clay Smith. SUFFICIENT DEER BROWSE PRODUCED BY A WIDE RANGE OF CUTTING PRACTICES. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 25-33, 1 fig. 1968. WR 131: 60

[W. Va. Dept. Nat. Resources, French Creek.] Abstract: Results of a deer browse study in Appalachian hardwoods indicated that any type of economical timber harvest apparently produced more than enough stems of preferred species to support a population of at least 13 deer per square mile without appreciable damage to reproduction of desirable tree species. Thus, the need to produce deer browse is not of vital importance to timber managers in this area and their cutting practices can be oriented toward other objectives. Under situations where the objectives of game management envision a larger deer herd it is obvious that deer density will reach a point when increasing available browse would be a valid goal of cutting.

Davis, R. B., and C. K. Winkler. BRUSH VS. CLEARED RANGE AS DEER HABITAT IN SOUTHERN TEXAS. J. Wildl. Mgmt. 32(2): 321-329. Apr. 1968. WR 131: 61

[Texas A & I Univ., Kingsville.] Abstract: A study made in the Rio Grande Plain of Texas to compare native brush ranges with rootplowed ranges as habitat for white-tailed deer (Odocoileus virginianus) consisted of three phases: (1) a general study of plant phenology to determine the periodicity of important browse species, (2) a comparison of forage available with that eaten by deer on brush ranges and rootplowed ranges, and (3) a study of deer behavior and movements on adjacent areas of native brush and rootplowed rangeland. Forage production throughout southern Texas was affected by duration and intensity of winter cold, grading from severe effects in the northern portions of the region to practically none at the southern limits. Browse, the major deer food in the area, was more abundant on brushy ranges than on rootplowed ranges reseeded to grasses; but forbs, the preferred deer food, were about equally abundant on the two ranges. Deer preferred to inhabit brush rather than rootplowed ranges, particularly under drouth conditions, and this preference is related to the greater availability of fruits and leaves of brush species on brush ranges.

Day, Benjamin W., Jr. VERMONT'S BIG GAME SEASONS IN REVIEW. Vt. Fish & Game Dept. 38 p., 2 figs. 1967. WR 131: 61

[Vt. Fish & Game Dept., Montpelier.] Data from bow, buck, antlerless deer, and bear seasons.

Dietz, Donald Ray. CHEMICAL COMPOSITION AND DIGESTIBILITY BY MULE DEER OF SELECTED FORAGE SPECIES, CACHE LA POUDRE RANGE, COLORADO. Ph.D. thesis, Colo. State Univ. 179 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 61

Deer summer range is nutritionally superior to deer winter range during the plant growing season. On winter range, management practices which benefit a variety of browse species, both deciduous and evergreen, will provide a better balanced diet for the deer herd.

Drawe, D. Lynn. MID-SUMMER DIET OF DEER ON THE WELDER WILDLIFE REFUGE. J. Range Mgmt. 21(3): 164-166. May 1968. WR 131: 61

[Utah State Univ., Logan.] Highlight: The mid-summer food habits of white-tailed deer on the Welder Wildlife Refuge were studied by rumen analysis, using the point analysis method. Preference ratings were developed from the data collected. Deer diet in relation to soil type was: clay areas 70% forbs, 22% browse, and 8% grasses; and sandy areas 53% forbs, 45% browse, and 2% grasses. Seven species from the combined sand and clay areas made up 50% of the deer diet. Mast averaged 29% of the diet from the combined sand and clay areas.

Duvendeck, Jerry P. THE 1967 DEER SEASON / BOIS BLANC AND BEAVER ISLANDS. Mich. Dept. Conserv., Res. & Development Rept. no. 134. 20 p., 6 figs. 30 Jan. 1968. WR 131: 61

[Mich. Dept. Conserv., Lansing.] Biological data on the past 25 deer seasons have provided information on deer size and condition for the two islands. Physical condition of the herd has declined with overgrazing and maturation of the range.

Gladfelter, Harold Lee. NOCTURNAL BEHAVIOR OF WHITE-TAILED DEER IN THE HATTER CREEK ENCLOSURE. Idaho Dept. Fish & Game and Univ. Idaho Coop. Wildl. Res. Unit. vii + 46 p., 19 figs. 1966. WR 131: 61

Abstract: The nocturnal behavior of [Odocoileus virginianus] was studied in the 800-acre Hatter Creek deer enclosure in northern Idaho [from July 1965 to Apr. 1966]. Techniques used for locating and observing the deer at night were small neon blinkers and sheep bells which had been attached to collars on captured deer, an infrared sniperscope, electronic counting devices used for movement studies, and observation perches used for direct observation of behavior. The nocturnal movement of deer was greater in the evening than in the morning and was related to changes in light intensity after sunset and before sunrise. The length of the nocturnal activity periods was related to

decreases in temperature and increases in humidity. Nocturnal feeding activity decreased from summer to winter and was accompanied by decreasing monthly mean temperatures. The bedding activity increased from summer to winter with bedding activity in winter occurring during the greater part of the night. However, bedding periods were interspersed with short feeding periods. [Prepared originally as a thesis. See WR 124: 34.]

Greenley, Joseph C., and Marshall Humphreys. THE DECLINE IN THE 1962 MULE DEER HARVEST IN NEVADA. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 173-176. [1964.] WR 131: 62

[Nev. Fish & Game Comm., Reno.] Conclusions: The major cause for the decline in the buck harvest in 1962 was due, we believe, to the relatively poor deer production during the drought years from 1959 through 1961. Other factors contributing to this decline were an unusually high buck harvest during the three drought years because of good hunting conditions followed by poor hunting conditions in 1962. There is no apparent correlation between the harvesting of antlerless deer and the decline in the buck harvest.

Guthrie, William A. AN INVESTIGATION OF SAMPLING METHODOLOGY OF WINTER BROWSE. M.S. thesis, Va. Polytech. Inst. 59. 1964. WR 131: 62

Determination of most efficient plot size for estimating the weight of winter browse in mountain mixed hardwoods, and the more efficient sampling method between simple random and double sampling.--Courtesy/ Burd S. McGinnes.

Halla, Bernard. WHAT HAPPENED TO ALL THE DEER? Md. Conserv. 45(3): 8-11, 1 fig. June 1968. WR 131: 62

Hunters in Md. killed 3,000 fewer deer during the 1967 deer season than they did during the 1966 season; this was still the second largest harvest on record.

Hancock, Norman V. THE 1963 MULE DEER HARVEST DECLINE IN UTAH. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 181-188. [1964.] WR 131: 62

[Utah State Dept. Fish & Game, Salt Lake City.] "In summary, the decline in Utah's mule deer harvest occurred during the 1963 period. This decline came one year later than that of several of the other Great Basin states. The major factors responsible for the decline are: (1) a reduction of 14,576 special permits to bring a closer balance of deer herds to the carrying capacity of their winter ranges, and (2) adverse weather conditions during the opening weekend of the regular deer season. In addition, it is believed that the drought years of 1958, 1959, and 1960 had an effect upon the reproductive potential and fawn survival of some of Utah's deer herds, thus resulting in lowered populations which made it easier to balance the deer herds with the carrying capacity of the range through hunting efforts."

Healy, William M. FORAGE PREFERENCE DETERMINATION THROUGH USE OF TAME DEER. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 35-39, 1 fig. 1968. WR 131: 62

[NE Forest Expt. Sta., Morgantown, W. Va.] Abstract: Three deer (Odocoileus virginianus), male, female, and castrated male, were raised in captivity and trained to forage while attached to an observer by a 20-ft. rope. A harness was used to prevent escape, and deer were trained to ride in a small closed compartment on a trailer. Deer required three months training for forage preference determination work. Deer were observed foraging and the length of time spent feeding was recorded by species and plant part. Observation periods varied from 1-7 hours: deer fed most actively during the first hour. The technique proved excellent for close observation of feeding deer and revealed intake of plants that would not have been recorded by observing the habitat following feeding. Limitations of the technique are: (1) small sample size, (2) investment in time and equipment, (3) behavior changes, and (4) loss of trained deer.

Hesselton, William T. 1967 BIG GAME HARVEST SETS RECORDS. [N.Y.] Conservationist 22(6): 12-13, 2 figs. June-July 1968. WR 131: 63
[N.Y. Conserv. Dept., Albany.] A record kill of 78,481 deer was taken during the 1967 season, an average of 3.1 deer killed per square mile of deer range.

Jantzen, Robert A. POPULATION DECLINES OF MULE DEER IN NORTHERN ARIZONA. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 158-166. [1964.] WR 131: 63
[Ariz. Game & Fish Dept., Phoenix.]

Lankester, Murray W., and Roy C. Anderson. GASTROPODS AS INTERMEDIATE HOSTS OF PNEUMOSTRONGYLUS TENUIS DOUGHERTY OF WHITE-TAILED DEER. Canadian J. Zool. 46(3): 373-383, 8 figs. May 1968. WR 131: 63
[Univ. Guelph, Guelph, Ontario, Canada.]

Macgregor, Wallace G. ANALYSIS OF GREAT BASIN DEER DECLINE--CALIFORNIA. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 167-169. [1964.] WR 131: 63
[Calif. Dept. Fish & Game, Sacramento.]

Mackie, Richard J. SOME PHENOMENA ASSOCIATED WITH DYNAMICS OF MULE DEER IN THE MISSOURI RIVER BREAKS, MONTANA. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 129-133. [1966.] WR 131: 63
[Mont. Fish & Game Dept., Bozeman.] Abstract: Population data for mule deer (Odocoileus hemionus) in the Missouri River Breaks of north-central Montana were obtained continuously from June 1960 through September 1963 and irregularly thereafter during October-January periods. This report considers some relationships between reproductive performance and population trends during the six years.

McCaffery, Keith. BARGAIN OPENINGS. Wis. Conserv. Bull. 32(5): 21-23, illus. Sept.-Oct. 1967. WR 131: 63
Deer use small (less than 5 acres) forest openings more intensively than larger openings during spring and fall for feeding.

McKean, John W. DEER HUNTER PREFERENCES. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 221-227. [1967.] WR 131: 63
[Oreg. State Game Comm., Portland.] Analysis of the 285,961 licensed hunters that purchased deer tags as revealed by a hunting inventory questionnaire.

McKean, J. W., and I. D. Luman. OREGON'S 1962 DECLINE IN MULE DEER HARVEST. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 177-180. [1964.] WR 131: 63
[Oreg. State Game Comm., Portland.] "Recognition of the influences of weather upon forage production, deer production, and deer survival can be of value in forecasting trends in the density and composition of mule deer herds and the experience of hunters. We are also confident that interpretations must be made on the basis of individual herd ranges or major ecological types. It is apparent that animal responses to variations in weather and forage are not identical on all ranges."

Merriam, Harry R. RESEARCH TECHNIQUES UTILIZED IN DEER MANAGEMENT IN ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 125-128. [1965.] WR 131: 63
[Alaska Dept. Fish & Game, Juneau.]

Moen, Aaron N. SURFACE TEMPERATURES AND RADIANT HEAT LOSS FROM WHITE-TAILED DEER. J. Wildl. Mgmt. 32(2): 338-344, 4 figs. Apr. 1968. WR 131: 64
[Cornell Univ., Ithaca, N.Y.] Abstract: Measurements of surface temperatures and radiant heat loss from the trunks of two penned white-tailed deer (Odocoileus virginianus) fawns were made remotely with a portable radiometer during the winter. Surface temperatures were 6-8 degrees C higher than air temperatures. No difference was observed between the two deer in the surface temperature:air temperature relationships. The difference between air temperature and the surface temperature of the deer increased as air temperature decreased. Measurements of thermal radiation under clear skies at night showed a greater quantity of heat energy emanating from cedar cover than from upland hardwood cover or the clear sky in an open field. The radiant heat from the animal can be integrated with that from the different cover types if the radiation profile of the animal is known. The profile for white-tailed deer has not been determined, but may be estimated. Physiological evidence is cited which indicates the importance of radiant heat when the energy balance of an organism is being considered.

Mohler, Levi L. DEER HARVEST FLUCTUATIONS IN IDAHO. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 170-172. [1964.] WR 131: 64
[Idaho Fish & Game Dept., Boise.]

Montgomery, G. G. RATE OF TICK ATTACHMENT TO A WHITE-TAILED FAWN. Am. Midland Nat. 79(2): 528-530. Apr. 1968. WR 131: 64
[Univ. Minn., Minneapolis.] Abstract: A total of 59 American dog ticks (Dermacentor variabilis) attached to a free-ranging, tame, white-tailed deer fawn (Odocoileus virginianus) during a 26-day period in July, 1964. The hourly rate of tick attachment was almost four times as great between evening and morning collections as between morning and evening collections.

Montgomery, G. G., and R. E. Hawkins. LONE STAR TICKS FROM WHITE-TAILED DEER IN ILLINOIS. Trans. Ill. State Acad. Sci. 60(2): 203. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 64

Moore, William H. DEER BROWSE RESOURCES OF THE ATOMIC ENERGY COMMISSION'S SAVANNAH RIVER PROJECT AREA. SE Forest Expt. Sta., U.S. Forest Serv. Resource Bull. SE-6. 28 p. Dec. 1967. WR 131: 64
Summaries of plant occurrence, browse weight and degree of use are presented. Generally speaking the better sites contained more desirable species and greater weight of desirable browse. Overall, very little browse utilization was in evidence on the project area. Nevertheless, some use was noted throughout the area, particularly in the bottomlands and adjacent sites. Apparently, higher browsing pressure and more favorable browse supplies are both associated with the better hardwood sites. Carrying capacity of this 200,831 acre area is estimated at 5,000-6,000 deer with an optimum carrying capacity of 8,000-10,000.

Morris, John E. GROSS STRUCTURE OF THE CERVICAL REGION OF THE UTERUS OF WHITE-TAILED DEER. Iowa Acad. Sci. 71: 241-247, 3 figs. 1964. WR 131: 64

Nellis, Carl H. PRODUCTIVITY OF MULE DEER ON THE NATIONAL BISON RANGE, MONTANA. J. Wildl. Mgmt. 32(2): 344-349. Apr. 1968. WR 131: 64
[Univ. Wis., Madison.] Abstract: The mule deer (Odocoileus hemionus hemionus) on the National Bison Range, western Montana are controlled by selective removal of a third of the herd annually and suffer limited natural mortality. Fawn production, at 143:100 does, is only 5% lower than the fetal rate of 150:100 does and indicates very low postnatal fawn mortality. The corpora lutea rate of 168:100 does suggests that about 10% of the ova are lost due to fertilization and implantation failures and intrauterine fetal mortality. Yearling:adult ratios are 61:100 for males and 55:100 for females, for an annual adult mortality of 58%. This heavy adult mortality is counterbalanced by a low fawn loss and results in about a third of the herd being removed annually.

Owen, Daniel. DEER EXPLOSION IN THE SOUTH. Wis. Conserv. Bull. 32(5): 14-15, illus. Sept.-Oct. 1967. WR 131: 65
Southern Wis. deer populations increased by 30% each year in the past 6 years.

Payne, R. L., W. P. Maples, and J. F. Smith. THE OCCURRENCE OF OESOPHAGOSTOMUM CERVI MERTTS, 1948, IN WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS) OF THE SOUTHEASTERN UNITED STATES. J. Parasitol. 53(4): 691. Aug. 1967. WR 131: 65
[Univ. Ga., Athens.]

Pickens, Homer. MULE-DEER MANAGEMENT USING IMPROVED TRAPPING TECHNIQUE. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 146-150. [1964.] WR 131: 65
[US AEC, Los Alamos, N. Mex.]

Queal, Leland M. EFFECTIVENESS OF ROADSIDE MIRRORS IN CONTROLLING DEER-CAR ACCIDENTS / A PROGRESS REPORT. Mich. Dept. Conserv., Res. & Development Rept. no. 103. 7 p., 1 fig. 12 June 1967. WR 131: 65
[Mich. Dept. Conserv., Lansing.] The kill in the test area increased 135% but decreased 23% in the control area.

Queal, Leland M. EFFECTIVENESS OF ROADSIDE MIRRORS IN CONTROLLING DEER-CAR ACCIDENTS. Mich. Dept. Conserv., Res. & Development Rept. no. 137. 9 p., 1 fig. 4 Mar. 1968. WR 131: 65
[Mich. Dept. Conserv., Lansing.] In 1965, the highway deer kill following installation of the mirrors decreased 26% from the previous year while the kill in the control area increased 10%. The kill in 1966 increased 135% in the test area, but decreased 23% in the control area. In 1967, the kill in the test area decreased 30%, while increasing 88% in the control area. Changes in deer numbers and distribution patterns are thought to have more influence on these fluctuations than the presence of the mirrors.

Queal, Leland M. ATTITUDES OF LANDOWNERS TOWARD DEER IN SOUTHERN MICHIGAN, 1960 AND 1965. Paps. Mich. Acad. Sci., Arts & Letters 53: 51-72, 3 figs. 1968. WR 131: 65
[Mich. Dept. Conserv., Lansing.] Studies of attitudes of landowners toward deer and deer hunting were conducted in 1960 and 1965 in the southern 34 counties of Mich. Increases in deer population, number of road kills, and deer crop damage have apparently produced changes in landowner willingness to permit hunting. In 1960, only 36% of the farmers permitted deer hunting on the land. By 1965, even with a twofold increase in the numbers of deer hunters, 51% of the landowners permitted hunting.

Randall, Charles Edgar. WHITE TAILS--A SUCCESS STORY. Am. Forests 74(4): 32-35, 59-62, illus. Apr. 1968. WR 131: 65
General information on restocking efforts and increased deer populations in the U.S.

Roughton, Robert D. ECOLOGICAL HISTORY OF KEY BROWSE SPECIES ON CACHE LA POUDRE DEER WINTER RANGE. Colo. Game, Fish & Parks Dept. vi + 69 p., 29 figs. Oct. 1963. WR 131: 65
Individual ages and age-class frequencies were determined for 12 populations of browse (5 of bitterbush, 3 of big sagebrush, 3 of mountain mahogany, 1 of ponderosa pine). Frequency of occurrence in 1- and 5-year age classes and population densities of the browse species were determined for milacre plots. The age structure of the browse population may reflect its current and past reproductive success, and its present successional status.--From abstr.

Russo, John P. RESPONSE OF KAIBAB NORTH DEER TO INTENSE MANAGEMENT. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 168-182. [1967.] WR 131: 65
[Ariz. Game & Fish Dept., Phoenix.]

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Ryel, L. A. THE 1966 DEER SEASONS. Mich. Dept. Conserv., Res. & Development Rept. no. 114. 11 p., 4 figs. 8 June 1967. WR 131: 66
[Mich. Dept. Conserv., Lansing.] Total deer harvest in 1966 was 93,610 deer, based on mail survey responses. The harvest approximated the average take for the previous 10 years.

Ryel, L. A. DEER HUNTERS' OPINION SURVEY, 1966. Mich. Dept. Conserv., Res. & Development Rept. no. 119. 14 p. 4 Aug. 1967. WR 131: 66
[Mich. Dept. Conserv., Lansing.] Data compiled from 13 years of hunter opinion surveys on special seasons, number of deer seen, and reasons for "yes" or "no" responses.

Samuel, W. M., and R. L. Beaudoin. IDENTIFICATION OF EGGS AND LARVAE OF NEMATODES PARASITIC IN DEER IN PENNSYLVANIA. Proc. Pa. Acad. Sci. 49: 73-77, 10 figs. on 1 pl. 1965. WR 131: 66
[Univ. Wis., Madison.] Abstract: Many of the nematode parasites of deer can be readily detected and identified by examination of fecal specimens. A description of the eggs and larvae of those species commonly found parasitizing white-tailed deer in Pennsylvania is presented with a synopsis of their characteristics and a key to their identification.

Samuel, W. M., and R. L. Beaudoin. EVALUATION OF TWO SURVEY METHODS FOR DETECTION OF HELMINTH INFECTIONS IN WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS). Bull. Wildl. Disease Assoc. 2(4): 100-107, 2 figs. Oct. 1966. WR 131: 66
[Univ. Wis., Madison.] Abstract: White-tailed deer, Odocoileus virginianus, from central Pennsylvania were examined for helminth parasites by regular autopsy procedures supplemented by a direct centrifugal flotation technique. The two methods were compared and evaluated for suitability in diagnosis and survey work. The reliability and repeatability of the flotation method were studied. Prevalence of most nematodes encountered was increased as a direct result of supplementing autopsy routines with microscopic examination of fecal pellets by the DCF technique. The DCF technique was especially advantageous when dealing with small cryptic forms such as Ostertagia sp. and Capillaria sp.

Segelquist, Charles A., and Walter E. Green. DEER FOOD YIELDS IN FOUR OZARK FOREST TYPES. J. Wildl. Mgmt. 32(2): 330-337, 1 fig. Apr. 1968. WR 131: 66
[Southern Forest Expt. Sta., Nacodoches, Texas.] Abstract: The kind and amount of deer food varied between forest types and with rainfall in an Arkansas Ozark forest. The sparsely timbered cedar glades and bottomland hardwoods produced the most herbage and evergreen browse. They received heaviest deer use when mast was scarce. The more densely stocked hardwood types grew less forage but were the main source of winter food in good mast years. Average mast yields were 5-10 times greater than average winter browse yields.

Stanton, Don C. A HISTORY OF THE WHITE-TAILED DEER IN MAINE. Maine Game Div. Bull. no. 8. viii + 75 p., 33 figs. May 1963. WR 131: 66
Account of the maine deer herd from pre-colonial times to the present. History of the deer population, legislation, effects of land use and industry, and predation are discussed.

Teer, James G., Jack W. Thomas, and Eugene A. Walker. ECOLOGY AND MANAGEMENT OF WHITE-TAILED DEER IN THE LLANO BASIN OF TEXAS. Wildl. Monographs no. 15. 62 p., 18 figs. Oct. 1965. WR 131: 66
Contents: Deer population, Attributes of Llano Basin deer, Reproduction and productivity, Mortality and yield, and Discussion of management.

Verme, Louis J. POSSIBLE HEREDITARY DEFECTS IN MICHIGAN WHITE-TAILED DEER. J. Mammal. 49(1): 148. Feb. 1968. WR 131: 66
[Mich. Dept. Conserv., Shingleton.]

Watt, P. G., G. L. Miller, and R. J. Robel. FOOD HABITS OF WHITE-TAILED DEER IN NORTHEASTERN KANSAS. Trans. Kans. Acad. Sci. 70(2): 223-240. Summer 1967. [From J. Mammal. 49(2), 1968.] WR 131: 67

MAMMALS--MARINE

Bertram, G. C. L., and C. K. Ricardo Bertram. BIONOMICS OF DUGONGS AND MANATEES. Nature 218(5140): 423-426, 3 figs. 4 May 1968. WR 131: 67
[St. John's Coll., Cambridge, England.] Based on a paper read to the Linnean Society on 15 February 1968. A report of preliminary studies made in Guyana in 1962 and Queensland in 1965.

Burns, John J. MARINE MAMMAL INVESTIGATIONS IN NORTHWESTERN ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 129-133. [1965.] WR 131: 67
[Alaska Dept. Fish & Game, Juneau.]

Caldwell, Melba C., and David K. Caldwell. VOCALIZATION OF NAIVE CAPTIVE DOLPHINS IN SMALL GROUPS. Science 159(3819): 1121-1123, 2 figs. 8 Mar. 1968. WR 131: 67
[Allan Hancock Foundation, Univ. Southern Calif., Los Angeles.] Abstract: Pure-tone (2403) by four dolphins (Delphinus delphis bairdi) were analyzed for duration and the elapse of time before either response by another animal or a repeat whistle by the same animal. Only five major types of whistle emissions were recorded, all stereotyped and each characteristic of the animal emitting it. Only one of the four animals emitted two different whistles, one of which was rare and both of which were stereotyped. A pure-tone chirp and pulsed sounds are discussed. We found no evidence of a dolphin "language," but we present evidence of social response to acoustic signal.

Cowan, Daniel F. HELMINTH PARASITES OF THE PILOT WHALE GLOBICEPHALA MELAENA (TRAILL 1809). J. Parasitol. 53(1): 166-167. Feb. 1967. WR 131: 67
[Philadelphia Zool. Garden, Philadelphia, Pa.]

Gulland, J. A. THE MANAGEMENT OF ANTARCTIC WHALING RESOURCES. J. Conseil 31(3): 330-341. Jan. 1968. WR 131: 67
[Dept. Fisheries, FAO, Rome, Italy.] The magnitude of the potential net economic yield which might be taken from the Antarctic whale stocks--of the order of half the total potential gross value of some $160 million--is contrasted with the failure to attain rational use of the resource. It is suggested that the potential net economic yield can only be obtained by some form of international ownership. License fees for the right to take a share of the catch could be substantial, and provide an income which could be used in many ways, research, paid to member governments, etc. To set up such an international authority might require an initial loan to buy out those at present whaling; this loan could be repaid out of the license fees even before the stocks had rebuilt to the optimum level.--From abstr.

Kikuchi, Shigeru, Shigeo Hayashi, and Masayuki Nakajima. [STUDIES ON ANISAKIASIS IN DOLPHINS.] Japanese J. Parasitol. 16(3): 156-166. June 1967. [From J. Mammal. 49(2), 1968. In Japanese with English abstr.] WR 131: 67

Klinkhart, Edward G. THE BELUGA WHALE IN ALASKA. Alaska Dept. Fish & Game (Juneau). [i] + 11 p. Nov. 1966. WR 131: 67
Description, range and movements, abundance, population dynamics, food habits, parasites and predators, underwater sound, utilization, control, control, future research and management, and a 52-item bibliography of Delphinapterus leucas.

Morejohn, G. Victor. A KILLER WHALE--GRAY WHALE ENCOUNTER. J. Mammal. 49 (2): 327-328. May 1968. WR 131: 68
[Moss Landing Marine Lab., Moss Landing, Calif.] Observations of an attack of 7 Orcinus orca on 3 Eschrictius glaucus in May 1967.

Neave, D. J., and B. S. Wright. SEASONAL MIGRATIONS OF THE HARBOR PORPOISE (PHOCOENA PHOCOENA) AND OTHER CETACEA IN THE BAY OF FUNDY. J. Mammal. 49(2): 259-264, 4 figs. May 1968. WR 131: 68
[Northeastern Wildl. Sta., Fredericton, New Brunswick, Canada.] Abstract: Movements of harbor porpoises in the Bay of Fundy were studied from observations of Cetacea by the watch-keeping officers of three daily ferries from December of 1965 to November of 1966. Definite movements were shown with porpoises abundant only in July, August, and September. The inward migration in late June and July was farther off shore than September movement out of the Bay. Porpoises moved in larger groups in autumn than in the spring. A small over-wintering population remained in the Bay all year round.

Olsen, O. Wilford, and Eugene T. Lyons. LIFE CYCLE OF UNCINARIA LUCASI STILES, 1901 (NEMATODA: ANCYLOSTOMATIDAE) OF FUR SEALS, CALLORHINUS URSINUS LINN., ON THE PRIBILOF ISLANDS, ALASKA. J. Parasitol. 51(5): 689-700, 11 figs. Oct. 1965. WR 131: 68
[Colo. State Univ., Fort Collins.]

Rausch, Robert L., and Francis H. Fay. STUDIES ON THE HELMINTH FAUNA OF ALASKA. XLIV. REVISION OF OGMOGASTER JÄGERSKIÖLD, 1891, WITH A DESCRIPTION OF O. PENTALINEATUS SP. N. (TREMATODA: NOTOCOTYLIDAE). J. Parasitol. 52(1): 26-38, 12 figs. Feb. 1966. WR 131: 68
[Arctic Health Res. Center, Anchorage, Alaska.] From the gray whale Eschrichtius gibbosus.

Rebach, Steve, and William C. Cornell. A SHORT METHOD OF PREPARING THE TEETH OF THE BOTTLE-NOSED DOLPHIN, TURSIOPS TRUNCATUS, FOR AGE DETERMINATION. J. Mammal. 49(1): 163-164, 1 fig. Feb. 1968. WR 131: 68
[Univ. R.I., Kingston.]

Schusterman, Ronald J., and Ronald G. Dawson. BARKING, DOMINANCE, AND TERRITORIALITY IN MALE SEA LIONS. Science 160(3826): 434-436, 2 figs. 26 Apr. 1968. WR 131: 68
[Stanford Res. Inst., Menlo Park, Calif.] Abstract: Experiments in which male sea lions (Zalophus californianus) were removed and reintroduced into a social group demonstrate that barking by larger males restricts movement and barking by other smaller males. Barking and aggression were primarily directed toward animals of most nearly equal size. Two 6-year-olds seeking to establish and maintain territorial status used aggressive tactics similar to those observed in breeding males in the field.

Shaver, H. N., and T. C. Poulter. SEA LION ECHO RANGING. J. Acoustical Soc. Am. 42(2): 428-437. Aug. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 68

Stirling, Ian, and Emanuel D. Rudolph. INLAND RECORD OF A LIVE CRABEATER SEAL IN ANTARCTICA. J. Mammal. 49(1): 161-162. Feb. 1968. WR 131: 68
[Univ. Canterbury, Christchurch, New Zealand.]

Stroud, Richard K. RISSO DOLPHIN IN WASHINGTON STATE. J. Mammal. 49(2): 347-348. May 1968. WR 131: 68
[Marine Mammal Biol. Lab., Seattle, Wash.] Measurements and stomach contents of Grampus griseus.

Stutz, Sherwood S. MOULT IN THE PACIFIC HARBOUR SEAL PHOCA VITULINA RICHARDI. J. Fisheries Res. Board Canada 24(2): 435-442. Feb. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 68

Stutz, Sherwood S. PELAGE PATTERNS AND POPULATION DISTRIBUTIONS IN THE PACIFIC HARBOUR SEAL (PHOCA VITULINA RICHARDI). J. Fisheries Res. Board Canada 24(2): 451-456. Feb. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 69

Van den Bergh, Hendrik. LES PHOQUES, CHAMPIONS DE PLONGÉE. [SEALS, THE DIVING CHAMPIONS.] Zoo 32(2): 57-63, illus. Oct. 1966. WR 131: 69
The Weddell seal (Leptonychotes weddelli) has been recorded diving to distances of 600 meters; record duration of a dive is 43 minutes. The heartbeat and rate of metabolism are greatly reduced during the dive.

Warneke, Robert M. SEALS OF WESTERNPORT. Victoria Fisheries & Wildl. Dept., Wildl. Circ. no. 18. 4 p., illus. [1966.] WR 131: 69
[Victoria Fisheries & Wildl. Dept., Melbourne, Australia.] History of Arctocephalus tasmanicus on Seal Rocks, Victoria. Reprint from Victoria's Resources 8(2), 1966.

Watkins, William A., and William E. Schevill. UNDERWATER PLAYBACK OF THEIR OWN SOUNDS TO LEPTONYCHOTES (WEDDELL SEALS). J. Mammal. 49(2): 287-296. May 1968. WR 131: 69
[Woods Hole Oceanog. Inst., Woods Hole, Mass.] Abstract: Underwater sounds of Leptonychotes weddellii were played back to these seals at McMurdo Sound, Antarctica, 17-19 November 1964. They responded vocally to playback of good fidelity as if another seal were present, but playback of poor quality elicited only silent interest. There were 14 playback events to eight different seals. They lost interest with time and successive playback events had less and less effect.

Wirtz, William O. II. REPRODUCTION, GROWTH AND DEVELOPMENT, AND JUVENILE MORTALITY IN THE HAWAIIAN MONK SEAL. J. Mammal. 49(2): 229-238, 3 figs. May 1968. WR 131: 69
[Cornell Univ., Ithaca, N.Y.] Abstract: Data on reproduction were collected during a tagging and censusing study at Kure Atoll in the Leeward Hawaiians. Fifty-three known-age seals were tagged in 1964 and 1965, and observations on growth and development were made on 47 individuals. The annual reproductive rate at Kure was 15 live pups per 100 adults. About 19% of the adult females bred in successive years, and only 56% of the adult females had pups in either of the two seasons. Pups are usually born in March, April, or May. Pups spend about 5 weeks ashore before disappearing from the island. This period is devoted to slight growth in total length and deposition of large amounts of fat. Females remain with the pups during this 5-week period, and nursing is believed to end with departure of the pup. Sharks and adult seals contribute to juvenile mortality.

MAMMALS--OTHER GROUPS

Baldwin, John David. A STUDY OF THE SOCIAL BEHAVIOR OF A SEMIFREE-RANGING COLONY OF SQUIRREL MONKEYS (SAIMIRI SCIUREUS). Ph.D. thesis, Johns Hopkins Univ. 286 p. 1967. [From Dissertation Abstr. 28(11B), 1968.] WR 131: 69

Barker, S., G. D. Brown, and J. H. Calaby. FOOD REGURGITATION IN THE MACROPODIDAE. Australian J. Sci. 25(10): 430-432. 1963. WR 131: 69
Regurgitation, re-mastication, and re-swallowing occur in kangaroos and wallabies, but do not appear to be analagous to rumination in ruminants.

Buchanan, G. Dale. THE PRESENCE OF TWO CONCEPTUSES IN THE UTERUS OF A NINE-BANDED ARMADILLO. J. Reprod. Fert. 13(2): 329-331. Apr. 1967. [From J. Mammal. 49(1), 1968.] WR 131: 69

Clark, Meredith J. THE BLASTOCYST OF THE RED KANGAROO, MEGALEIA RUFA (DESM.), DURING DIAPAUSE. Australian J. Zool. 14: 19-25, 2 figs. + 1 pl. 1966. WR 131: 69
[Div. Wildl. Res., CSIRO, Canberra, Australia.]

Demster, J. K. WHAT'S THE SCORE ON KANGAROOS? Wildl. Circ. no. 19. 5 p., illus. [1966.] WR 131: 70
[Fisheries & Wildl. Dept., Victoria, Australia.] General information on threatened species of marsupials and efforts being made to conserve them. Reprint from Victoria's Resources 8(2), 1966.

Hughes, R. L., J. A. Thomson, and W. H. Owen. REPRODUCTION IN NATURAL POPULATIONS OF THE AUSTRALIAN RINGTAIL POSSUM, PSEUDOCHEIRUS PEREGRINUS (MARSUPIALIA: PHALANGERIDAE), IN VICTORIA. Australian J. Zool. 13: 383-406, 3 figs. + 9 pls. [1965.] WR 131: 70
[CSIRO, Canberra, Australia.] Breeding season, fetal development, and histology of the ovary and reproductive tract.

Kami, Harry T. FOODS OF THE MONGOOSE IN THE HAMAKUA DISTRICT, HAWAII. Zoonoses Res. 3(3): 165-170. Dec. 1964. WR 131: 70
Abstract: A total of 493 mongoose droppings collected from dirt roads adjacent to cane fields and open pastures in the Hamakua District, Hawaii, were analyzed for food remains. Rodent pelage and bones were found in 72% of those from cane fields, but occurred in only 24% from pastures. Insect remains were found in 80% of the droppings from pasture areas. Arthropods and plant materials occurred regularly in samples from all areas and there were occasional remains of birds. Miscellaneous items such as string, paper, aluminum foil and bits of charcoal indicated the scavenging nature of this carnivore.

Khan, Mohd., and Momin Khan. MOVEMENTS OF A HERD OF ELEPHANTS IN THE UPPER PERAK AREA. Malayan Nat. J. 20(1-2): 18-23. Mar. 1967. [From J. Mammal. 49 (2), 1968.] WR 131: 70

Krumrey, William A., and Irven O. Buss. AGE ESTIMATION, GROWTH, AND RELATIONSHIPS BETWEEN BODY DIMENSIONS OF THE FEMALE AFRICAN ELEPHANT. J. Mammal. 49(1): 22-31, 4 figs. Feb. 1968. WR 131: 70
[Southern Ill. Univ., Carbondale.] Abstract: Fifty-six female savanna African elephants (Loxodonta africana africana) were collected in western Uganda from November 1958 to April 1959. Ages of 32 elephants from which teeth were available were estimated using criteria of molar-usage intervals, degree of molar replacement, and extent of molar wear. Based upon these estimated ages and total body weights, a growth equation for female elephants up to 25 years in age was calculated. The correlation coefficient based upon measurements of 56 specimens between body weight and shoulder height is 0.99, and between body weight and body length is 0.97.

Mykytowycz, R. OCCURRENCE OF BOT-FLY LARVAE TRACHEOMYIA MACROPI FROGGATT (DIPTERA: OESTRIDAE) IN WILD RED KANGAROOS, MEGALEIA RUFA (DESMAREST). Proc. Linnean Soc. New South Wales 88(3): 307-312, 2 figs. 1963. WR 131: 70
[CSIRO, Canberra, Australia.]

Neville, Melvin K. ECOLOGY AND ACTIVITY OF HIMALAYAN FOOTHILL RHESUS MONKEYS (MACACA MULATTA). Ecology 49(1): 110-123, 4 figs. Winter 1968. WR 131: 70
[Univ. Calif., Davis.] Abstract: Himalayan foothill rhesus monkeys were studied for a year at three forest habitats and in the town of Haldwani in Uttar Pradesh, India. Food supplies in the forest diminished both in abundance and variety as altitude increased during the ascent from tropical forests at the base of the foothills to subtropical pine and temperate oak forests at elevations of 5000 ft or more. Home range, day range, population density, and activity patterns also varied with altitude: monkey troops in the less favorable areas had larger home ranges and day ranges and were more often on the move during the day, while the lower elevations had a higher population density of monkeys. Increased mobility was a characteristic of one subtropical pine forest troop lacking any adult male. Both the abundance of food in Haldwani and the limited tolerance of the human inhabitants limited home ranges there

to about 0.02 mi^2, approximately 1/20 that of the smallest forest troop home range. Activity patterns were more stereotyped in the town than in the forest. The population density of the occupied portion of town was much more than in the forests, but less than on Cayo Santiago. Night time activity is probably greater in town.--Courtesy/ Paul A. Stewart.

Packer, Wayne C. EOSINOPHILS AND POPULATION DENSITY IN THE MARSUPIAL SETONIX. J. Mammal. 49(1): 124-126, 1 fig. Feb. 1968. WR 131: 71
[Univ. Western Australia, Nedlands.]

Phillips, Carleton J., and J. Knox Jones, Jr. ADDITIONAL COMMENTS ON REPRODUCTION IN THE WOOLLY OPOSSUM (CALUROMYS DERBIANUS) IN NICARAGUA. J. Mammal. 49(2): 320-321. May 1968. WR 131: 71
[Univ. Kans., Lawrence.]

Rochat, Ken, and Nick Steele. OPERATION RHODESIAN RHINO. Lammergeyer 8: 15-24. Mar. 1968. WR 131: 71
[Natal Parks, Game & Fish Preservation Board, P.O. Box 662, Pietermaritzburg, Natal, S. Africa.] During 7 months 74 square-lipped rhinos were transported by road to Rhodesia. The rhinos were immobilized with M99, crated, and loaded on trucks.

Stieglitz, Walter O., and W. D. Klimstra. DIETARY PATTERN OF THE VIRGINIA OPOSSUM, DIDELPHIS MARSUPIALIS VIRGINIANUS KERR, LATE SUMMER-WINTER, SOUTHERN ILLINOIS. Trans. Ill. Acad. Sci. 55(3-4): 198-208, 1 fig. 1962. WR 131: 71
Animal materials made up 76.2% of the total food volume, and plant materials 23.8%. Both major food groups appeared in all of the 131 digestive tracts examined.

Strickland, David L. ECOLOGY OF THE RHINOCEROS IN MALAYA. Malayan Nat. J. 20(1-2): 1-17. Mar. 1967. [From J. Mammal. 49(2), 1968.] WR 131: 71
"Didermoceros sumatrensis."

BIRDS--GENERAL

Adolphson, D. G., and Marion Adolphson. SIZE, DISTRIBUTION, AND POPULATION OF THREE COLONY NESTING SPECIES IN SOUTH DAKOTA. S. Dak. Bird Notes 20(1): 4-10, [6 figs.]. Mar. 1968. WR 131: 71
"Phalacrocorax auritus, Pelecanus erythrorhynchos, and Ardes herodias."

Friedmann, Herbert. PARALLEL EVOLUTION IN THE SMALL SPECIES OF INDICATOR (AVES). Proc. U.S. Natl. Museum 125(3655): 1-10, 2 figs. 1968. WR 131: 71
[Los Angeles County Museum Nat. Hist., Los Angeles, Calif.]

Gross, Alfred O. THE INCIDENCE OF ALBINISM IN NORTH AMERICAN BIRDS. Bird-Banding 36(2): 67-71. Apr. 1965. WR 131: 71
[11 Boody St., Brunswick, Maine.] Albinism has been recorded in each of the 20 orders and 54 of the 75 families of North American birds.

Gross, Alfred O. MELANISM IN NORTH AMERICAN BIRDS. Bird-Banding 36(4): 240-242. Oct. 1965. WR 131: 71
[11 Boody St., Brunswick, Maine.] Excessive deposition of melanin pigments is not as frequent as albinism. Intensification of red pigment (erythrism) appears normally in the screech owl; abnormal erythrism occurs most frequently in the Galliformes. A few cases of Xanthochroism have been recorded, in which yellow replaces the normal plumage coloring.--Courtesy/ Paul A. Stewart.

Gross, Alfred O. ALBINISTIC EGGS (WHITE EGGS) OF SOME NORTH AMERICAN BIRDS. Bird-Banding 39(1): 1-6, 1 fig. Jan. 1968. WR 131: 71
[11 Boody St., Brunswick, Maine.] Lists 34 spp. having laid albino eggs.--Courtesy/ Paul A. Stewart.

Lusis, Ya. Ya., Z. D. Spurin, E. J. Taurinš, and E. K. Vilka (editorial board). BIRDS OF THE BALTIC REGION: ECOLOGY AND MIGRATIONS / PROCEEDINGS OF THE FOURTH BALTIC ORNITHOLOGICAL CONFERENCE RIGA, JULY-AUGUST 1960. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 65-50101. vii + 336 p., illus. 1968. Russian original published by Izdat. Akad. Nauk Latviiskoi SSR in 1961. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 72

Five papers on the status and prospects of ornithological research, eighteen papers on the ecology and biology of birds, twenty papers on migration and related problems, eleven papers on faunistics and morphology and a review paper on the work of the Fourth Baltic Ornithological Conference.

McClure, H. Elliott, and Hussein bin Othman. AVIAN BIONOMICS OF MALAYA 2. THE EFFECT OF FOREST DESTRUCTION UPON A LOCAL POPULATION. Bird-Banding 36(4): 242-269, 8 figs. Oct. 1965. WR 131: 72

[Armed Forces Inst. Pathol., APO 323, San Francisco, Calif.] A comparison of the recapture rates of ringed birds from forested and deforested areas suggested that many species in the deforested area were completely eliminated or left the vicinity, that about one-third of the birds from the deforested area moved into adjacent forested area, that the concentration of forest edge species was four times as much as it had been, and that probably less than 5% of the birds from the destroyed areas were able to establish new territories in adjacent forest by the end of the study.--From summ. Courtesy/ Paul A. Stewart.

Proctor, Vernon W. LONG-DISTANCE DISPERSAL OF SEEDS BY RETENTION IN DIGESTIVE TRACT OF BIRDS. Science 160(3825): 321-322. 19 Apr. 1968. WR 131: 72

[Texas Technol. Coll., Lubbock.] Abstract: Viable seeds of Celtis, Convolvulus, Malva, and Rhus were regurgitated from the digestive tract of killdeer (Charadrius vociferus) after 160, 144, 152, and 340 hours, respectively; seeds were recovered in the same way, after long-time retention, from least sandpipers (Erolia minutilla). Most other birds do not retain seeds as long. There is evidence that seeds of many species can remain viable in the intestinal tract of some shorebirds long enough to be transported several thousand miles.

BIRDS--TECHNIQUES

Bell, B. D., C. K. Catchpole, and K. J. Corbett. PROBLEMS OF CENSUSING REED BUNTINGS, SEDGE WARBLERS AND REED WARBLERS. Bird Study 15(1): 16-21. Mar. 1968. WR 131: 72

[Univ. Leicester, Leicester, England.] Known population levels determined by intensive population studies were compared with results from B.T.O. Common Birds Censuses on two study areas. The Common Birds Census was successful in locating 37% of the reed warblers, 75% of the sedge warblers, and 78% of the reed buntings.

Buckley, P. A., and J. T. Hancock, Jr. EQUATIONS FOR ESTIMATING AND A SIMPLE COMPUTER PROGRAM FOR GENERATING UNIQUE COLOR- AND ALUMINUM BAND SEQUENCES. Bird-Banding 39(2): 123-129. Apr. 1968. WR 131: 72

[Old Dominion Coll., Norfolk, Va.] Courtesy/ Paul A. Stewart.

Edgar, R. L. CATCHING COLONIAL SEABIRDS FOR BANDING. Bird-Banding 39(1): 41-43, 1 fig. Jan. 1968. WR 131: 72

[DSIR, Lower Hutt, New Zealand.] An adjustable noose on the end of a pole was used effectively to lift a bird from a crowded colony without disturbance.--Courtesy/ Paul A. Stewart.

Enemar, Anders, and Bengt Sjöstrand. THE STRIP SURVEY AS A COMPLEMENT TO STUDY AREA INVESTIGATIONS IN BIRD CENSUS WORK. Vår Fågelvärld 26: 111-130. 1967. [From Bird-Banding 39(1), 1968.] WR 131: 73

Hallett, A. F., and A. R. Brown. A METHOD OF TRAPPING EUROPEAN SWALLOWS. Ostrich 35(4): 293-296. 1961. [From Bird-Banding 36(4), 1965.] WR 131: 73
A nylon net, 4 x 30 ft. was carefully folded lengthwise and laid on the ground, pegged down along one side. Through the top of the net a thin rope was threaded and extended 25 ft. on either side of the net. Operators on either end of the rope waited for swallows to fly low over the ground. As a swallow approached, the net was lifted about three feet, then thrown over the bird as it hit the net, trapping the bird under the net. From 1958 to 1963, 2,042 swallows were caught in this fashion.

Hendrick, Donald J. TEMPERATURE COMPARISONS OF WOODEN AND METAL BIRD BOXES. Passenger Pigeon 30(1): 14-17. Spring 1968. WR 131: 73
[Tomahawk Jr. High School, Tomahawk, Mich.] Mean maximum temperatures in vented wooden and metal boxes were not significantly different from mean maximum air temperatures, while mean temperatures in unvented wooden and metal boxes exceeded the mean air temperature by 16.2°F. and 17.3°F. respectively.

Howard, Deborah V. CRITERIA FOR AGING AND SEXING BAY-BREASTED WARBLERS IN THE FALL. Bird-Banding 39(2): 132. Apr. 1968. WR 131: 73
[Mass. Audubon Soc., Lincoln.] Courtesy/ Paul A. Stewart.

Humphrey, Philip S., David Bridge, and Thomas E. Lovejoy. A TECHNIQUE FOR MIST-NETTING IN THE FOREST CANOPY. Bird-Banding 39(1): 43-50, 3 figs. Jan. 1968. WR 131: 73
[Univ. Kans., Lawrence.] The net was pulled up in the forest canopy on ropes running through pulleys to heights of 24 meters.--Courtesy/ Paul A. Stewart.

Johnston, David W. AN EFFECTIVE METHOD FOR TRAPPING TERRITORIAL MALE INDIGO BUNTINGS. Bird-Banding 36(2): 80-83, 1 fig. Apr. 1965. WR 131: 73
[Univ. Fla., Gainesville.] A stuffed male in breeding plumage and a recording of the species' song effectively lured territorial male Passerina cyanea into Japanese mist nets.

Larsen, Kenneth H. BANDING PLIERS FOR PRE-OPENED BANDS. J. Wildl. Mgmt. 32(2): 425-426, 2 figs. Apr. 1968. WR 131: 73
[Bur. Sport Fisheries & Wildl., Cornelius, Oreg.] Abstract: The fabrication of pliers that close pre-opened bird bands with a single clamping motion is described. Metal "wedges," fitted into the jaws, roll in on the band as it is being shut, molding the band into a tightly closed position. Pliers for bands of five different sizes have been made and used successfully for banding thousands of birds, principally waterfowl.

Leach, Mrs. Robert. EXPERIENCES WITH A HELIGOLAND TRAP. Bird-Banding 36 (3): 179-184, 2 figs. July 1965. WR 131: 73
[Rt. 10, South St. Paul, Minn.] Plantings in front of the entrance to the trap help attract birds which would not be attracted to grain baits. Yield from the trap is dependent upon the number of people available to drive birds in; the cost of building a trap is not justified unless two or more banders are involved.--From concl. Courtesy/ Paul A. Stewart.

Nettleship, David N. BAND SIZE FOR COMMON PUFFINS IN NEWFOUNDLAND. Bird-Banding 39(1): 57. Jan. 1968. WR 131: 73
[McGill Univ., Montreal, Canada.] Size 5 should be used instead of the recommended size 6 which is too large.--Courtesy/ Paul A. Stewart.

Sealy, Spencer G. SOME ALCID LEG SIZES AND BAND SIZES. Bird-Banding 39(1): 59. Jan. 1968. WR 131: 74
[Univ. British Columbia, Vancouver, B.C., Canada.] Reports proper size bands for use on 9 spp.--Courtesy/ Paul A. Stewart.

Sealy, Spencer G. TECHNIQUE FOR RECORDING FIELD DATA IN THE RAIN. Bird-Banding 39(2): 134. Apr. 1968. WR 131: 74
[Univ. British Columbia, Vancouver, B.C., Canada.] By placing his notebook or clipboard inside a transparent polyethylene bag, a field researcher can insert his hand into the bag and write while watching through the plastic.--Courtesy/ Paul A. Stewart.

Thompson, R. D. DESIGN AND IMPLANTATION OF SENSORS AND TRANSDUCERS FOR PHYSIOLOGICAL MEASUREMENTS IN WILD BIRDS. Proc. 2nd Natl. Biomed. Sciences Instrumentation Symposium (Albuquerque, 1964). p. 123-130, 7 figs. 1964. WR 131: 74
[Bur. Sport Fisheries & Wildl., Denver, Colo.] Design of and surgical procedures for implantation in wild birds of electrocephalogram and electrocardiogram sensors, and respiration and temperature transducers for telemetering the respective physiological functions.

Wilson, S. J., S. G. Lane, and J. L. McKean. THE USE OF MIST NETS IN AUSTRALIA. CSIRO Div. Wildl. Res. Tech. Pap. no. 8. 26 p., 14 figs. 1965. WR 131: 74
[2 Scott St., Narrabundah, A.C.T., Australia.] Compilation of available information on the use of mist nets, including types of nets, methods of constructing and erecting poles, selection of netting site, removal of birds from net, and repair of broken threads.

Yeatman, L., and Y. Berthelot. METHODE MATHEMATIQUE D'ESTIMATION D'UNE POPULATION D'OISEAUX D'APRES LE POURCENTAGE DES REPRISES. [MATHEMATICAL METHODS FOR DETERMINING A BIRD POPULATION ACCORDING TO THE PERCENTAGE OF RETURNS.] L'Oiseau & Revue Francaise Ornithol. 34(3-4): 258-263. 1964. [From Bird-Banding 36(3), 1965. In French.] WR 131: 74

BIRDS--MORPHOLOGY & PHYSIOLOGY

Cade, T. J. SURVIVAL OF THE SCALY-FEATHERED FINCH SPOROPIPES SQUAMIFRONS WITHOUT DRINKING WATER. Ostrich 36(3): 131-132. 1965. [From Bird-Banding 37 (3), 1966.] WR 131: 74

Calder, W. A., Jr., and P. J. Bentley. URINE CONCENTRATIONS OF TWO CARNIVOROUS BIRDS, THE WHITE PELICAN AND THE ROADRUNNER. Comparative Biochem. Physiol. 22: 607-609. 1967. WR 131: 74
[Duke Univ., Durham, N.C.]

Ficken, Robert W., and Linnea B. Wilmot. DO FACIAL EYE-STRIPES FUNCTION IN AVIAN VISION? Am. Midland Nat. 79(2): 522-523. Apr. 1968. WR 131: 74
[Univ. Wis., Milwaukee.] Abstract: Facial eye-stripes are a characteristic of certain birds and lower vertebrates. We suggest they use them as aiming sights in striking moving prey. In support of this, 141 North American songbirds of 22 families were examined for eye-stripes and grouped according to their feeding habits. There was a +.94 rank-difference correlation between presence of an eye-stripe and feeding on swiftly moving prey. Herons seem to sight along a line at an angle above the bill and by so doing may correct for refraction of underwater prey.

Harrison, C.J.O. EGG MIMICRY IN BRITISH CUCKOOS. Bird Study 15(1): 22-28. Mar. 1968. WR 131: 74
[British Museum Nat. Hist., Cromwell Road, London, England.] Nests parasitized by Cuculus canorus were examined to determine host species and extent of egg mimicry. A total of 144 nests contained 148 cuckoo eggs; the majority of parasitic eggs were unlike those of the host.

Keast, Allen. MOULT IN BIRDS OF THE AUSTRALIAN DRY COUNTRY RELATIVE TO RAINFALL AND BREEDING. J. Zool. (London) 155(2): 185-200, 3 figs. June 1968. WR 131: 75

[Queen's Univ., Kingston, Ontario, Canada.] The annual molt of some 20 spp. of birds inhabiting the dry western section of New South Wales is studied, emphasis being on time of commencement, duration, finishing time, and the interrelationship of breeding and molting. Primary feather replacement is taken as the main criterion. Attention is drawn to adaptational parallels in the molt of certain dry country birds of Australia, Africa, and South America.--From abstr.

Norris, Robert A., and Donald D. Stamm. RELATIVE INCIDENCE OF DISTRESS CALLS OR "SQUEALS" IN MIST-NETTED BIRDS. Bird-Banding 36(2): 83-88. Apr. 1965. WR 131: 75

Preliminary study of 745 individuals representing 55 spp.

Packard, Gary C. EVOLUTIONARY DYNAMICS OF HOUSE SPARROWS: RE-ANALYSIS OF DATA ON TARSUS LENGTH. Kans. Ornithol. Soc. Bull. 19(2): 13-14. June 1968. WR 131: 75

[Colo. State Univ., Fort Collins.]

Sladen, William J. L., John C. Boyd, and John M. Pedersen. BIOTELEMETRY STUDIES ON PENGUIN BODY TEMPERATURES. Antarctic J. U.S. 1(4): 142-143. July-Aug. 1966. WR 131: 75

[Johns Hopkins Univ., Baltimore, Md.] Transmitters were placed in plastic capsules and were implanted in the abdominal cavities of four adult and two chick Adêlie penguins (Pygoscelis adeliae). Body temperatures in an adult Adêlie average 38.7° C; fluctuations of 1.0° C were recorded in birds disturbed by helicopters or engaging in loud mutual display.

BIRDS--BEHAVIOR & MIGRATION

Bassini, Ettore. ANALISI QUANTITATIVA E QUALITATIVA DEI DATI DI CATTURA DEL LUCARINO (CARDUELIS SPINUS L.) IN ALCUNE UCCELLANDE IN ITALIA. [QUANTITATIVE AND QUALITATIVE ANALYSIS OF DATA ON THE EUROPEAN SISKIN (CARDUELIS SPINUS L.) AT TRAPPING STATIONS IN ITALY.] Ricerche Zool. Appl. alla Caccia 39. 43 p., 21 figs. 1965. In Italian with French, German, and English summ. WR 131: 75

Three decades of trapping studies indicate that migration was heaviest through Venetia and Lombardy from 1930 to 1940; the highest percentage of captures in the last decennium occurred in Emilia, Marches, and Tuscany. Migration peaks occurred during Oct., with lesser numbers appearing in Nov.

Berger, Andrew J. BEHAVIOR OF HAND-RAISED EMPIDONAX FLYCATCHERS. Jack-Pine Warbler 45(4): 131-138. Dec. 1967. WR 131: 75

[Univ. Hawaii, Honolulu.] Feeding behavior, call notes, sleep, preening, water bathing, and sun bathing activities were observed in fledgling Empidonax traillii, E. flaviventris, and E. virescens.

Bernis, F. SOBRE MIGRACIÓN DE NUESTROS PASSERIFORMES TRANSAHARIANOS. [TRANS-SAHARAN PASSERINE MIGRANTS IN IBERIA.] Ardeola 8: 41-119. 1963. [From Bird-Banding 36(1), 1965. In Spanish with English summ.] WR 131: 75

Bremond, Jean-Claude. VALEUR SPECIFIQUE DE LA SYNTAXE DANS LE SIGNAL DE DEFENSE TERRITORIALE DU TROGLODYTE (TROGLODYTES TROGLODYTES). [SPECIFIC VALUE OF PATTERN IN THE TERRITORIAL DEFENSE SIGNALS OF THE WREN (TROGLODYTES TROGLODYTES).] Behaviour 30(1): 66-75, 1 fig. 1968. In French with English summ. WR 131: 75

[Lab. Physiol.-Acoustique, Jouy-en-Josas, France.]

Chernov, Yu. I. [THE TROPHIC RELATIONSHIPS OF BIRDS TO INSECTS IN THE TUNDRA ZONE.] Ornitologiya 8: 133-149. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 75

de Crousaz, Gérard. A PROPOS DES MOUVEMENTS SAISONNIERS DE LA POPULATION ALPINE DU PIPIT SPIONCELLE. [IN REGARD TO THE SEASONAL MOVEMENTS OF THE ALPINE POPULATION OF THE WATER PIPIT ANTHUS SPINOLETTA SPINOLETTA.] Oiseaux 28(304): 161-168, 2 figs. Feb. 1966. In French. WR 131: 76

[Cerisiers 19A, Pully, Vaud, Switzerland.] The alpine population leaves its nesting area in Sept.-Oct. and returns again in Mar.-Apr. During Oct.-Apr., individuals of Anthus s. spinoletta appear all over the continent to the coasts of the Baltic and North Seas, and more frequently to the edges of the Atlantic and the Mediterranean. The dispersion seems to follow the river valleys out of the Alps, then spreads out along the coasts.

Dobrowolski, Kazimierz A. STUDIES ON ECOLOGICAL ADAPTATIONS OF BIRDS OF THE VISTULA RIVER. Ekologia Polska--Ser. A 12(33): 615-651, 22 figs. 1964. In English with Polish summ. WR 131: 76

Abstract: Several years' observations of birds on Vistula River in the vicinity of Wyszogród and studies on their food enabled the analysis of: daytime activity cycles of Vistula birds, value of particular Vistula habitats for waterfowl, interrelations between different species, food relations of birds. These studies permitted also to demonstrate the morphoecological types of these birds.

Dorka, Volker. DAS JAHRES- UND TAGESZEITLICHE ZUGMUSTER VON KURZ- UND LANGSTRECKENZIEHERN NACH BEOBACHTUNGEN AUF DEN ALPENPÄSSEN COU/BRETOLET (WALLIS). [THE ANNUAL AND DAILY FLIGHT-PATTERN OF SHORT AND LONG DISTANCE FLIERS BASED ON OBSERVATIONS MADE AT COU AND BRETOLET PASSES, SWITZERLAND.] Ornithol. Beobachter 63(6): 165-223, 42 figs. Dec. 1966. In German with English summ. WR 131: 76

[Max-Planck-Inst. für Verhaltensphysiol., Walddorf, Germany.] Studies of migration patterns at Cou and Bretolet passes in Switzerland indicate the following: long-distance (i.e. trans-Saharan) migrants and species with pronounced flapping flight are the main nocturnal migrants; diurnal migration typically takes place among middle- or short-distance fliers and nonpasserines with a gliding flight. Insectivorous species are subjected to a sudden reduction of food supply over a wide range in temperate zones, and have developed an early and far-reaching migration, while seed-eaters follow a migration pattern restricted to a minimum.--From summ.

Falk, Lloyd L. AN INTERSPECIFIC RESPONSE TO BEGGING STIMULUS. Delmarva Ornithol. 5(1): 33. Winter 1968. WR 131: 76

Four spp. of warblers were attracted to the calls of an immature house wren.

Ficken, Millicent S., and Robert W. Ficken. ECOLOGY OF BLUE-WINGED WARBLERS, GOLDEN-WINGED WARBLERS AND SOME OTHER VERMIVORA. Am. Midland Nat. 79(2): 311-319. Apr. 1968. WR 131: 76

[Univ. Wis., Milwaukee.] Abstract: Blue-winged warblers (Vermivora pinus) and golden-winged warblers (V. chrysoptera) have become extensively sympatric in the last 100 years and hybridize where they meet. The two species bred in the same habitats in a study area in central New York, although blue-wings occupied wetter areas to a greater extent than golden-wings over a three-year period. However, in 1966, when golden-wings were no longer present, blue-wings occupied drier areas as well. The two species fed in the same manner and in the same locations. Blue-wings foraged faster and probably slightly more effectively than golden-wings and hybrids. It is concluded that the two species have very similar ecological requirements, that they are in competition, and cannot coexist indefinitely. The foraging patterns of other members of the genus for which there is information are similar to V. pinus and V. chrysoptera. The bills of Vermivora are very straight and acute at the tip, adaptations for probing buds and leaf clusters and for feeding in flowers. The North American species show some degree of habitat exclusion. Ecological implications for the evolution of the genus are discussed.

Galindo, Pedro, and Eustorgio Méndez. BANDING OF THRUSHES AND CATBIRDS AT ALMIRANTE, PANAMA. SECOND YEAR OF OBSERVATIONS. Bird-Banding 36(4): 233-239. Oct. 1965. WR 131: 77
[Gorgas Memorial Lab., Box 6991, Panama, Republic of Panama.] Weekly summaries of captures and recaptures of 4,654 migrant thrushes from Sept. 1963 through Aug. 1964.--Courtesy/ Paul A. Stewart.

Gotzman, J. REMARKS ON ETHOLOGY OF THE RED-BACKED SHRIKE LANIUS COLLURIO L. NEST DEFENCE AND DESERTION. Acta Ornithol. Warz. 10: 83-96. 1967. [From Ibis 110(1), 1968.] WR 131: 77

Gyllin, Roger. DYGNSRYTM HOS KORNSPARVEN (EMBERIZA CALANDRA). [THE DIURNAL RHYTHM OF THE CORN BUNTING.] Vår Fågelvärld 26: 19-29. 1967. [From Bird-Banding 38(4), 1967. In Swedish with English summ.] WR 131: 77

Haartman, Lars von. THE EVOLUTION OF RESIDENT VERSUS MIGRATORY HABIT IN BIRDS. SOME CONSIDERATIONS. Ornis Fennica 45(1): 1-7, 1 fig. 1968. In English with Finnish summ. WR 131: 77
[Univ. Helsinki, Helsinki, Finland.]

Hatch, Jeremy John. DIVERSITY OF THE SONG OF MOCKINGBIRDS (MIMUS POLYGLOTTOS) REARED IN DIFFERENT AUDITORY ENVIRONMENTS. Ph.D. thesis, Duke Univ. 177 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 77
Song patterns of wild mockingbirds in N.C. (a rich auditory environment), wild birds in the Bahamas (an impoverished auditory environment), and hand-raised mockers exposed to sounds (but no bird song) were compared for diversity and content. The wild birds sang in patterns that occurred with varying frequencies; the Bahaman birds, however, generally had a smaller repertoire. Isolates sang more long notes, and few syllable-patterns included more than one note.

Hatch, Robert McConnell. AN IMMATURE YELLOW-THROAT SEEN SWIMMING. Bird-Banding 37(1): 53. Jan. 1966. WR 131: 77
[37 Chestnut St., Springfield, Mass.] An immature yellow-throat (Geothlypis trichas) swam about two feet out into a pond and then turned and swam to the pond's shore.--Courtesy/ Paul A. Stewart.

Hicks, David Lee. A STUDY OF ADIPOSE TISSUE DURING FAT DEPLETION IN SPRING MIGRANT BIRDS. Ph.D. thesis, Univ. Ga. 84 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 77
Adipose tissue becomes atrophied when whole body fat indexes fall below 0.20 (g fat/g nonfat dry weight).

Hietakangas, H., and R. Tenovuo. ÜBER DIE WANDERUNUNGEN DER SCHNEEAMMER PLECTROPHENAX NIVALIS IM SPÄTWINTER. [ON THE MIGRATION OF THE SNOW BUNTING (PLECTROPHENAX NIVALIS) IN LATE WINTER.] Ornis Fennica 42: 69-75. 1965. [From Ibis 110(2), 1968. In German.] WR 131: 77

Hogan-Warburg, A. J. SOCIAL BEHAVIOUR OF THE RUFF PHILOMACHUS PUGNAX (L.). Ardea 54: 109-229. 1966. [From Ibis 110(1), 1968.] WR 131: 77
A four-year study of the social organization of the lek community, behavior patterns, and external morphology.

Hussell, D. J. T., and R. W. Stamp. MOVEMENTS OF BLACK-CAPPED CHICKADEES AT LONG POINT, ONTARIO DURING THE SPRING OF 1962. Bird-Banding 36(2): 71-80, 3 figs. Apr. 1965. WR 131: 77
[1916 Cambridge Rd., Ann Arbor, Mich.] An invasion of Parus atricapillus occurred in southern Ontario in the fall of 1961. An apparent return movement was studied at Long Point, Ontario, in the spring of 1962; 505 chickadees were banded at 3 locations on Long Point.--From summ.

Kislenko, G. A., and R. L. Naumov. [PARASITISM AND ECOLOGICAL RACES OF THE COMMON AND GLUKHA CUCKOOS IN ASIATIC USSR.] Ornitologiya 8: 79-97. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 78

Konrad, Thomas G., John J. Hicks, and Ella B. Dobson. RADAR CHARACTERISTICS OF BIRDS IN FLIGHT. Science 159(3812): 274-280, 9 figs. 19 Jan. 1968. WR 131: 78

[Johns Hopkins Univ. Appl. Physics Lab., Silver Spring, Md.] Radar tracking of known single birds indicates a characteristic radar "signature" that differs from the returns of other possible point or dot targets such as aircraft, swarms of insects, several birds together, or small clouds or other meteorological structures.--From concl.

Lijla, I. [THE MIGRATION OF THE GENERA CALIDRIS, CROCETHIA AND LIMICOLA ON THE COAST NEAR PORI IN THE YEARS 1951-60.] Ornis Fennica 41: 81-93. 1964. [From Ibis 110(2), 1968. In Finnish with German summ.] WR 131: 78

Deals with the timing of autumn and spring passage of the three genera of waders.

Loftin, Horace, David T. Rogers, Jr., and David L. Hicks. REPEATS, RETURNS AND RECOVERIES OF NORTH AMERICAN MIGRANT BIRDS BANDED IN PANAMA. Bird-Banding 37(1): 35-44. Jan. 1966. WR 131: 78

[Fla. State Univ. Canal Zone Program, Box 930, Albrook AFB, Canal Zone.] Contains a table of bandings, returns, and repeats of 51 spp. mist-netted in Panama and a list, with banding notes, of 24 spp. Recaptive records indicated return of some birds to the same wintering grounds in subsequent years.--From summ. Courtesy/ Paul A. Stewart.

Merkel, F. W., and W. Wiltschko. MAGNETISMUS UND RICHTUNGSFINDEN ZUGUNRUHIGER ROTKELCHEN (ERITHACUS RUBECULA). [MAGNETISM AND ORIENTATION OF MIGRATORY RESTLESSNESS IN ROBINS.] Vogelwarte 23(1): 71-76. 1965. [From Bird-Banding 37(3), 1966. In German with English summ.] WR 131: 78

Mitterling, Lloyd A. APPLE FEEDING BY WILD BLUE JAYS (CYANOCITTA CRISTATA) IN CAPTIVITY. Bird-Banding 39(1): 23-30. Jan. 1968. WR 131: 78

[Univ. Conn., Storrs.] Blue jays were confined in an enclosure with 12 apple trees with maturing fruit plus alternative foods and water. Despite the alternate foods and water they fed freely on all four apple varieties. Immature fruits were rejected regardless of variety, and a later-maturing variety was not fed upon until it had ripened.--From summ. Courtesy/ Paul A. Stewart.

Murphy, Fanny. CHICKADEES HATCH AND RAISE A BLUEBIRD. Migrant 39(1): 11-12. Mar. 1968. WR 131: 78

[Route 2, Brentwood, Tenn.]

Nisbet, I. C. T. AERODYNAMIC THEORIES OF FLIGHT VERSUS PHYSIOLOGICAL THEORIES. Bird-Banding 38(4): 306-308. Oct. 1967. WR 131: 78

[Univ. Malaya, Kuala Lumpur, Malaya.] Objections to the treatment of published data by Raveling and Lefebvre [WR 127: 44] on their studies of the rate of weight-loss in birds during migration.--Courtesy/ Paul A. Stewart.

Nisbet, I. C. T., and W. H. Drury, Jr. ORIENTATION OF SPRING MIGRANTS STUDIED BY RADAR. Bird-Banding 38(3): 173-186, 3 figs. July 1967. WR 131: 78

[Univ. Malaya, Kuala Lumpur, Malaya.] Radar observations for 85 nights during 1 May - 5 June of 1959, 1960, and 1961 were analyzed with MTI screening to determine mean directions of migration flights. Overcast did not significantly impair orientation. Cross-winds did not cause much deviation of the mean direction of flight; the birds apparently compensated for drift.--Courtesy/ Paul A. Stewart.

Nyholm, Erik S. NOTES ON THE ROOSTING BEHAVIOUR OF THE GREAT SPOTTED WOODPECKER (DENDROCOPOS MAJOR) AND THE THREE-TOED WOODPECKER (PICOIDES TRIDACTYLUS). Ornis Fennica 45(1): 7-9. 1968. In English with Finnish summ. WR 131: 79
[Kuusamo, Finland.]

Pickens, A. L. THE EIGHTH BIRD AND NECTAR CENSUS. Chat 32(1): 5-6. Mar. 1968. WR 131: 79
[1729 Lombardy Circle, Charlotte, N.C.] Color preference of the ruby-throated hummingbird appears to be red, violet, yellow, blue, and green, in that order. Three families of flowers (figworts, mints, and peas) furnish more bird hosts and have bird-specialized species. Lily and thistle families rank next, but with no notable specialization.--Courtesy/ Paul A. Stewart.

Pulliainen, E. OBSERVATIONS ON THE AUTUMNAL TERRITORIAL BEHAVIOUR OF THE GREAT SPOTTED WOODPECKER DENDROCOPOS MAJOR (L.). Ornis Fennica 40: 132-139. 1963. [From Ibis 110(2), 1968.] WR 131: 79

Rabøl, Jørgen. VISUAL DIURNAL MIGRATORY MOVEMENTS. Dansk Ornithol. Forenings Tidsskr. 61(2): 73-99. 1967. [From Bird-Banding 39(2), 1968.] WR 131: 79

Rowan, M. K. TERRITORY AS A DENSITY-REGULATING MECHANISM IN SOME SOUTH AFRICAN BIRDS. Ostrich Suppl. no. 6. p. 397-408. 1966. WR 131: 79
[Univ. Cape Town, Cape Town, South Africa.] Permanent, non-seasonal territoriality is thought to impose a ceiling on the number of breeding pairs in an area, and so act as a density-regulating mechanism. Further, it ensures availability of a breeding site for paired birds should favorable conditions arise, a consideration which might be important for species occupying a climatically unstable environment.--From summ.

Salzen, Eric A., and James M. Cornell. SELF-PERCEPTION AND SPECIES RECOGNITION IN BIRDS. Behaviour 30(1): 44-65. 1968. In English with German summ. WR 131: 79
[Univ. Waterloo, Waterloo, Ontario, Canada.] Newly-hatched chicks were dyed red, or green, or were left their natural yellow color. After being reared for 8 days in visual isolation or in small social groups, the chicks were tested in a three-choice test apparatus for their approach to red, green, and yellow chicks. A chick was scored for a choice if it reached a goal-box and tried to push through the separating wire-mesh. These experiments show that newly-hatched chicks have no preference for red, yellow, or green chicks, but that they learn the color of their companions and selectively approach them by 8-days of age. These results are compared with the published work on color and approach and following responses in chicks. In general there seems to be more evidence against color preferences in such responses in newly-hatched chicks. The apparent stronger preference shown by chicks that have experienced colors at the extremes of the visible spectrum could be due to the greater possibilities for generalization in birds trained to colors in the middle of the spectrum. In any event, there seems no doubt that the color of the companion is learned.--From summ.

Schoener, Thomas W. SIZES OF FEEDING TERRITORIES AMONG BIRDS. Ecology 49 (1): 123-141, 7 figs. Winter 1968. WR 131: 79
[Harvard Univ., Cambridge, Mass.] Territory sizes were positively related to body weight. Predators had larger territories than omnivores and herbivores of the same weight. Home range sizes of raptors were correlated with the numbers of prey animals and with raptor weight. Clutch size was not associated with territory size. Heavier predators captured fewer prey animals per unit time than lighter predators. Collective biomasses in a given large area increased as individual biomasses became larger for omnivorous species, and decreased as individual biomasses increased for predators. The biomass per unit area decreased as the weight of the predators increased.--From abstr. Courtesy/ Paul A. Stewart.

Sindelar, Charles. EASTERN BLUEBIRD VERSUS MEADOW VOLE. Passenger Pigeon 29(4): 115. Winter 1967. WR 131: 80
[1865 S. West Ave., Waukesha, Wis.] Several eastern bluebirds dive-bombed a meadow vole until it took shelter under an overturned charcoal grill.

Tretzel, Erwin. IMITATION UND TRANSPOSITION MENSCHLICHER PFIFFE DURCH AMSELN (TURDUS M. MERULA L.). [IMITATION AND TRANSPOSITION OF HUMAN WHISTLES BY BLACKBIRDS.] Z. Tierpsychol. 24(2): 137-161. 1967. [From Bird-Banding 39 (1), 1968. In German with English summ.] WR 131: 80

Wojtusiak, R. J. [STUDIES ON THE VOICES OF ANIMALS. PART 1. BIRDS OF POLAND.] Prace Zool. 9: 189-203. 1965. [From Ibis 110(1), 1968. In Polish with English summ.] WR 131: 80

Zhelnin, V. A. [AVIAN NESTING BEHAVIOR AND WEATHER FORECASTING.] Ornitologiya 8: 350-351. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 80

Zonov, G. B. [ON THE WINTER ROOSTS OF PARADAE SPP. IN CISBAIKAL.] Ornitologiya 8: 351-354. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 80
"Parus montanus, P. palustris, P. major, P. ater, and Aegithalos caudatus."

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Cody, Martin L. ON THE METHODS OF RESOURCE DIVISION IN GRASSLAND BIRD COMMUNITIES. Am. Naturalist 102(924): 107-147, 17 figs. Mar.-Apr. 1968. WR 131: 80
[Univ. Calif., Los Angeles.] The members of avian communities resident in simple grassland habitats coexist by virtue of differences in habitat preferences and feeding behavior and in very tall vegetation by differences in feeding height. The sum of these ecological differences is constant for all communities. Using only two habitat indexes, vegetation height and its standard deviation, it is possible to predict (1) the number of species, (2) the differences in their feeding ecology, and (3) their relative habitat separation in the community which occupies this habitat. As these predictions are made for South American communities on the basis of the communities studied in North America, and as the predictions hold regardless of grazing or irrigation programs, it is suggested that these communities have a full quota of species which are optimally adapted to their current environment.--From summ.

Committee on Bird Sanctuaries in the Royal Parks (England and Wales). BIRD LIFE IN THE ROYAL PARKS 1963-1964. Her Majesty's Stationery Office (London). vi + 37 p., 4 pls. 1966. Price 90¢. WR 131: 80
"One hundred and thirty species were recorded during the years 1963 and 1964 in the [10] Royal Parks and [4] other open spaces...in the Greater London area, of which 64 bred or were believed to have bred."

Courtenay-Latimer, M. BIRDS OF THE STATE ALLUVIAL DIAMOND DIGGINGS FROM HOLGAT TO ORANGE RIVER MOUTH. Ann. Cape Provincial Museums 3: 44-56, [6 figs.]. 1963. WR 131: 80
Annotated list of 172 spp.

Cowan, John, compiler. BIRDS OF THE GRAY LODGE WATERFOWL MANAGEMENT AREA. Calif. Resources Agency, Dept. Fish & Game. 8 p. [1967.] WR 131: 80
[Gray Lodge Waterfowl Area, Gridley, Calif.] List of 183 spp. encountered during 1948-1966.

Dement'ev, G. P., N. A. Gladkov, and others. BIRDS OF THE SOVIET UNION. VOLUME VI. Published for the Smithsonian Institution and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 66-51069. xx + 879 p., 153 figs., 147 maps. 1968. Russian original published by Gosudarstvennoe Izdat. "Sovetskaya Nauka" (Moscow) in 1954. [Translation available from U. S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 81

Final volume of a six-volume work [Vol. I, WR 127: 48; Vol. IV, WR 128: 40] containing a species account of 13 families of Passeriformes, from Laniidae to Hirundinidae.

Farkas, T. CONTRIBUTION TO THE BIRD FAUNA OF BARBERSPAN. Ostrich Suppl. no. 4. 39 p., 3 figs. + 2 pls. Dec. 1962. WR 131: 81

Systemic, annotated list of 239 spp.; the geographical and climatological characteristics of the sanctuary are described.

Fleming, Robert Leland, Jr. THE BIRDS OF MUSSOORIE, U.P., INDIA--A DISTRIBUTIONAL AND ECOLOGICAL STUDY. Ph.D. thesis, Mich. State Univ. 115 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 81

The habitat selections, foraging positions, interspecific associations, altitudinal distributions, seasonal movements, behavior patterns, and zoogeographical affinities of 200 spp. belonging to 50 families were determined.

Haapanen, A. BIRD FAUNA OF THE FINNISH FORESTS IN RELATION TO FOREST SUCCESSION. Ann. Zool. Fenn. 2: 153-196. 1965. [From Ibis 110(2), 1968.] WR 131: 81

A study of the effect of stand characteristics on the forest bird fauna during the breeding season, with particular reference to the effect of natural forest succession after fire.

Kelleher, Kevin Edmond. DISTRIBUTION OF BREEDING BIRDS IN DECIDUOUS FORESTS AT THE PRAIRIE-HARDWOOD FOREST ECOTONE IN NORTHWESTERN MINNESOTA. Ph.D. thesis, Univ. Minn. 126 p. 1967. [From Dissertation Abstr. 28(8B), 1968.] WR 131: 81

Study was made during springs and summers of 1964-1966.

Klaas, Erwin E. SUMMER BIRDS FROM THE YUCATAN PENINSULA, MEXICO. Univ. Kans. Publ. Museum Nat. Hist. 17(14): 581-611, 1 fig. 24 Apr. 1968. WR 131: 81

Locality records are given for each of 136 spp. of birds represented by 493 specimens and sight records are given for eight additional species. Fourteen genera, representing about 19 spp., of Mallophaga are reported for 20 different species of bird hosts.--From summ.

Kulczycki, A. [THE BIRDS OF THE LAŃCUT PARK.] Acta Zool. Cracov. 11: 351-386. 1966. [From Ibis 110(2), 1968. In Polish with English summ.] WR 131: 81

Laine, H. ON SOME INFLUENCES OF THE ATLANTIC AND ARCTIC OCEANS ON THE BIRD FAUNA OF UTSJOKI, FINNISH LAPLAND. Ann. Univ. Turku A II. 36: 236-258. 1966. [From Ibis 110(1), 1968.] WR 131: 81

Linehan, John T., Robert E. Jones, and Jerry R. Longcore. BREEDING-BIRD POPULATIONS IN DELAWARE'S URBAN WOODLOTS. Audubon Field Notes 21(6): 641-646. Dec. 1967. WR 131: 81

[Univ. Del., Newark.] During the 1966 and 1967 breeding seasons a series of 14 censuses of singing males was completed on 9 urban woodlots ranging in size from 2.0 to 35.5 acres. Percentage composition of species was computed for each woodlot and species were rated "abundant" or "scarce" according to their relative abundance. Physical characteristics of the woodlots were discussed in relation to the species present.

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Pienaar, U. de V., and O. P. M. Prozesky. A SUPPLEMENTARY CHECK-LIST OF BIRDS RECORDED IN THE KRUGER NATIONAL PARK. Koedoe no. 10. p. 92-100, illus. 1967. WR 131: 82
[Kruger Natl. Park, Skukuza, South Africa.] Twenty-three new species, most of which are seasonal migrants.

Quinton, W. F., and J. M. Winterbottom. A LIST OF THE BIRDS OF THE BEAUFORT WEST DISTRICT. South African Avifauna Ser. Percy Fitzpatrick Inst. African Ornithol. no. 55. 18 p. + 1 folded map. 1968. Price 20¢. WR 131: 82

Schaldach, W. J., Jr. THE AVIFAUNA OF COLIMA AND ADJACENT JALISCO, MEXICO. Proc. Western Foundation Vertebrate Zool. 1(1): 1-100 + 2 maps + suppl. Apr. 1963. $1.50. WR 131: 82

Schwartz, Albert, and Ronald F. Klinikowski. OBSERVATIONS ON WEST INDIAN BIRDS. Proc. Acad. Nat. Sci. Philadelphia 115(3): 53-77. 30 July 1963. WR 131: 82
[Miami-Dade Jr. Coll., Miami, Fla.] Annotated list of 100 spp.

Short, Lester L., Jr., and Richard C. Banks. NOTES ON BIRDS OF NORTHWESTERN BAJA CALIFORNIA. Trans. San Diego Soc. Nat. Hist. 14(3): 43-52, 3 figs. + 1 map. 4 Aug. 1965. WR 131: 82
[Am. Museum Nat. Hist., New York, N.Y.] Annotated list of 84 spp.

Short, Lester L., Jr., and Richard S. Crossin. NOTES ON THE AVIFAUNA OF NORTHWESTERN BAJA CALIFORNIA. Trans. San Diego Soc. Nat. Hist. 14(20): 283-299, [5] figs. + 1 map. 17 Nov. 1967. WR 131: 82
[Am. Museum Nat. Hist., New York, N.Y.] Annotated list of 134 spp.

Siegfried, W. R. THE BIRDS OF JONKERSHOEK, STELLENBOSCH. South African Avifauna Ser. Percy Fitzpatrick Inst. African Ornithol. no. 54. 19 p. 1968. Price 30¢. WR 131: 82

Skead, C. J., and R. Liversidge. BIRDS OF THE TSITSIKAMMA FOREST AND COASTAL NATIONAL PARK, 1966. Koedoe no. 10. p. 43-62, 4 figs. 1967. WR 131: 82
[Univ. Cape Town, Cape Town, South Africa.] A preliminary listing of bird species indicates 175 land birds and 35 sea birds.

Slud, P. THE BIRDS OF COCOS ISLAND (COSTA RICA). Bull. Am. Museum Nat. Hist.: Article 4. p. 261-296. 1967. [From Ibis 110(1), 1968.] WR 131: 82

Tramer, Elliot J. A REVISED LIST OF THE BIRDS OF ATHENS, GEORGIA, AND VICINITY. Oriole 33(1): 2-17. Mar. 1968. WR 131: 82
[Univ. Ga., Athens.] List annotated as to status.

Uspenskii, S. M., R. L. Beme, and A. G. Velizhanin. THE AVIFAUNA OF WRANGEL ISLAND. Ornitologiya 6: 58-67. 1963. [From Bird-Banding 36(4), 1965.] WR 131: 82

Wahlstedt, Jens. FÅGELFAUNA PÅ HAPARANDA SANDSKÄR. [THE AVIFAUNA OF HAPARANDA SANDSKÄR.] Vår Fågelvärld 26: 131-151. 1967. [From Bird-Banding 39 (1), 1968. In Swedish with English summ.] WR 131: 82
Includes an annotated list of 146 spp.

Winterbottom, J. M. FIFTH REPORT ON THE NEST RECORD CARD SCHEME. Ostrich [36]: 117-120. Sept. 1965. WR 131: 82
[Univ. Cape Town, Cape Town, South Africa.] List of 85 spp. recorded 100 or more times in South African nesting study.

Winterbottom, J. M. NOTES ON BIRD DISTRIBUTION IN SOUTH WEST AFRICA. Rev. Zool. Bot. Afr. 73(3-4): 309-316, 2 figs. 30 June 1966. WR 131: 83
[Univ. Cape Town, Cape Town, South Africa.] The avifauna in 7 divisions of South West Africa were compared using the Coefficient of Community, $100C/n_1 + n_2 - C$. Results indicate that 4 separate avifaunal communities should be recognized.

Winterbottom, J. M. REMARKS ON THE AVIAN ECOLOGY OF NORTH-CENTRAL SOUTH WEST AFRICA. Ostrich Suppl. no. 6. p. 285-295, illus. 1966. WR 131: 83
[Univ. Cape Town, Cape Town, South Africa.] Bird habitats of the Etosha Pan region of South West Africa are divided into 9 ecological types. Species occurring in 40% or more of the daily lists for each type habitat are called dominant in that habitat.

Winterbottom, J. M. THE RELATIONSHIPS OF SOME AFRICAN AQUATIC AVIFAUNAS. Rev. Zool. Bot. Africaines 75(1-2): 149-155, 1 fig. 30 Mar. 1967. WR 131: 83
[Univ. Cape Town, Cape Town, South Africa.] The aquatic avifauna of 13 lakes and marshes in Africa are compared, using the Coefficient of Community, $100C/n_1 + n_2 - C$. East African waters from Lake St. Lucia to Lakes Victoria and Edward are inhabited by a single avifauna; Lake Chad and the Niger inundation area probably exemplify a different, though related, avifauna; and the aquatic avifauna of the southwestern Cape Province is even more distinct.--From summ.

Winterbottom, J. M. A REVISED LIST OF THE BIRDS OF THE BONTEBOK NATIONAL PARK, SWELLENDAM. Koedoe no. 10. p. 122-131. 1967. WR 131: 83
[Univ. Cape Town, Cape Town, South Africa.] Annotated list of 144 spp.

Yocom, Charles F. JULY BIRD LIFE IN THE COPPER RIVER DELTA COUNTRY / ALASKA--1962. Murrelet 44(3): 28-34, 1 fig. Sept.-Dec. 1963. WR 131: 83
[Humboldt State Coll., Arcata, Calif.] Annotated list of 40 spp.

Zimmerman, John L. KANSAS BREEDING BIRD SURVEY FOR 1967. Kans. Ornithol. Soc. Bull. 19(2): 9-13, 2 figs. June 1968. WR 131: 83
[Kans. State Univ., Manhattan.]

BIRDS--POPULATIONS & FLUCTUATIONS

Anderson, Kathleen S., and Herbert K. Maxfield. WARBLER RETURNS FROM SOUTHEASTERN MASSACHUSETTS. Bird-Banding 38(3): 218-223, 1 fig. July 1967. WR 131: 83
Thirteen hundred and seventy warblers of 26 spp. were banded in regularly-scheduled netting operations between May 1960 and Oct. 1966. Returns of 73 individuals of 6 breeding species provide information on longevity and return rates.--Courtesy/ Paul A. Stewart.

Dexter, Ralph W. ANALYSIS OF THE 1966 AND 1967 RETURNS OF CHIMNEY SWIFTS AT KENT, OHIO. Bird-Banding 39(1): 56-57. Jan. 1968. WR 131: 83
[Kent State Univ., Kent, Ohio.] With arrival and departure dates and family histories of locally breeding banded birds.--Courtesy/ Paul A. Stewart.

Lebedeva, M., and T. Shevareva. [FORTY YEARS OF BIRD-BANDING IN THE USSR.] Okhota & Okhotnich'e Khoz. 1964(4): 21-23. 1964. [From Bird-Banding 36(2), 1965. In Russian.] WR 131: 83

Mueller, Helmut C., and Daniel D. Berger. THE RELATIVE ABUNDANCE OF SPECIES CAUGHT IN THE MIST-NETS DURING FALL MIGRATION AT CEDAR GROVE. Passenger Pigeon 29(4): 107-115. Winter 1967. WR 131: 83
Day-and-night mist netting in the autumns of 1958 through 1963 produced data on Wis. migrants, each bird being counted when banded. The percent of total for each species was compared with that of the W.S.O. visual count checklist.

Nickell, Walter P. RETURN OF NORTHERN MIGRANTS TO TROPICAL WINTER QUARTERS AND BANDED BIRDS RECOVERED IN THE UNITED STATES. Bird-Banding 39(2): 107-116. Apr. 1968. WR 131: 84

[Cranbrook Inst. Sci., Bloomfield Hills, Mich.] Three percent of 6,348 migrant birds banded in British Honduras during 1960-64 returned to the same wintering area one to four years after banding. The orchard oriole (Icterus spurius) was the chief species involved (62.4%).--Courtesy/ Paul A. Stewart.

Olrog, C. C. BIRD-BANDING IN SOUTH AMERICA. Bird-Banding 39(1): 30-32. Jan. 1968. WR 131: 84

[Inst. Miguel Lillo, Tucumàn, Argentina.] A limited number (7051) of birds were banded to determine whether recovery of the birds would be reported by South American natives. Recoveries were returned at about the same rate as in the United States.--Courtesy/ Paul A. Stewart.

Puzachenko, Yu. G. [GEOGRAPHICAL VARIATION OF ABUNDANCE AND STRUCTURE OF AVIAN POPULATIONS IN FOREST BIOCENOSES.] Ornitologiya 8: 109-122. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 84

Ribaut, Jean-Pierre. DYNAMIQUE D'UNE POPULATION DE MERLES NOIRS, TURDUS MERULA L. [DYNAMICS OF A POPULATION OF EUROPEAN BLACKBIRDS.] Rev. Suisse Zool. 71(4): 815-902. 1964. [From Bird-Banding 37(1), 1966. In French with English summ.] WR 131: 84

Sladen, William J. L., Robert C. Wood, and William B. Emison. ANTARCTIC AVIAN POPULATION STUDIES, 1965-1966. Antarctic J. U.S. 1(4): 141-142. July-Aug. 1966. WR 131: 84

[Johns Hopkins Univ., Baltimore, Md.] More than 24,500 Adêlie penguin (Pygoscelis adeliae) chicks have been banded or marked at Cape Crozier, Ross Island. No marked birds have been recovered during their first year, but approximately 7% of 2-, 3-, and 4-year olds are returning to the rookery. Food samples included Crustacea (60% by dry weight), fish remains (39%), and miscellaneous (1%).

Spaans, A. L. WADVOGELTELLING IN HET GEHELE NEDERLANDSE WADDENGEBIED IN DECEMBER 1966. [BIRD-COUNTS IN THE DUTCH WADDENSEA AREA IN DECEMBER 1966.] Limosa 40(4): 206-215, 1 fig. 1967. In Dutch with English summ. WR 131: 84

[RIVON, Zeist, Netherlands.] During the last week of Dec. 1966 the large islands and the coastal area of the mainland were censused for waders, ducks, geese, and gulls. Total count was 550,000.--From summ.

West, George C., Leonard J. Peyton, and Susan Savage. CHANGING COMPOSITION OF A REDPOLL FLOCK DURING SPRING MIGRATION. Bird-Banding 39(1): 51-55, 2 figs. Jan. 1968. WR 131: 84

Relative numbers of common redpolls (Acanthis flammea) and of hoary redpolls (Acanthis hornemanni) in a local population.--Courtesy/ Paul A. Stewart.

Wharton, Wm. P. RECOVERIES OF ROBINS BANDED AT GROTON, MASS. IN YEARS 1951-1964. Bird-Banding 37(1): 53. Jan. 1966. WR 131: 84

[Groton, Mass.] A list of 18 recoveries with dates and ages when banded, and dates and localities of recovery.--Courtesy/ Paul A. Stewart.

BIRDS--ECONOMICS, CONTROL, MORTALITY

Burr, Richard M. PARTIAL DESTRUCTION OF A ROBIN NEST BY A GRACKLE. Delmarva Ornithol. 5(1): 29. Winter 1968. WR 131: 84

Caithness, T. A. POISONING GULLS WITH ALPHA-CHLORALOSE NEAR A NEW ZEALAND AIRFIELD. J. Wildl. Mgmt. 32(2): 279-286, 1 fig. Apr. 1968. WR 131: 85
[Wildl. Serv., Dept. Internal Affairs, Wellington, New Zealand.] Abstract: In late 1965, a highly successful operation was carried out to destroy southern black-backed gulls (Larus dominicanus) breeding in the vicinity of Hawke Bay Airfield, Napier, New Zealand. The gulls were a serious hazard to aircraft. Following 4 days' prebaiting with unpoisoned bread baits distributed by aircraft, alpha-chloralose was applied to similar baits (200 mg/bait); these were spread over 250 acres at the ratio of one poisoned bait to four unpoisoned. Following another day on which unpoisoned baits were spread, further poisoning was done. Of the estimated 2,500 breeding gulls present, 2,131 (85%) were poisoned. However, the proportion killed was higher than this because many dead birds were later reported from outside the areas searched. In the 5-month period prior to poisoning, gulls were involved in 12 incidents with aircraft; only 4 incidents were recorded during the following 18 months.

Caithness, T. A., M. J. Williams, and R. M. Bull. BIRDS AND AIRCRAFT: A PROBLEM ON SOME NEW ZEALAND AIRFIELDS. Proc. New Zealand Ecol. Soc. 14: 58-62, 3 figs. 1967. WR 131: 85
[Wildl. Serv., Dept. Internal Affairs, Wellington, New Zealand.] General aspects of the problem are illustrated by reference to Aukland, Napier, and Invercargill Airports, which are located near feeding or roosting areas.

Grosskopf, Gerhard. STERBLICHKEIT UND DURCHSCHNITTSALTER EINIGER KÜSTENVÖGEL. [MORTALITY AND AVERAGE AGE OF SOME SEA BIRDS.] J. Ornithol. 105(4): 427-449. 1964. [From Bird-Banding 36(3), 1965. In German with English summ.] WR 131: 85

Havlin, Jiří. [ECONOMIC IMPORTANCE OF THE BLACKBIRD.] Zool. Listy 14(2): 129-142. 1965. [From Bird-Banding 37(2), 1966. In Czech with English summ.] WR 131: 85
"Turdus merula."

Hicks, David L., and Eugene McCullers. AN OBSERVATION OF STORM-KILLED MIGRANTS IN COSTA RICA. Bird-Banding 37(1): 54. Jan. 1966. WR 131: 85
[Univ. Ga., Athens.] Hundreds of thrushes, vireos and warblers were found on the ground dead or dying, presumably as a result of having been forced down by a tropical storm.--Courtesy/ Paul A. Stewart.

Lindzey, James S. PROTECTING FRUIT CROPS FROM BIRD DEPREDATIONS. Pa. Coop. Wildl. Res. Unit Pap. no. 109. 5-page unnumbered reprint from Pa. Fruit News, May 1963. WR 131: 85
[Pa. State Univ., University Park.] Mechanical barriers are the most effective, and the most expensive, means of crop protection. Sound frightening devices, habitat manipulation, and the establishment of alternative feeding sites for birds reduce bird damage under certain conditions. The reduction and removal of resident populations may be necessary.

Shilova-Krassova, S. A. THE ACTIVITY OF INSECTIVOROUS BIRDS IN AREAS MASS-INFESTED WITH FOREST PESTS. Published for the U.S. Department of Agriculture and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 65-50046. 9 p. 1965. Russian original from Zool. Zhur. 32(5): 955-963. 1953. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va. Price $1.00.] WR 131: 85
Large infestations of lackey moths in the larval stage attracted concentrations of orioles and cuckoos to the infested forests. During the period of mass pupation cuckoos and orioles were rarely seen; other species of birds fed on the pupae. Evidence of egg-laying indicated that the birds did not significantly diminish the population of lackey moths. Two study areas infested with green oak-leaf rollers were compared; birds in the lightly infested area destroyed 53.0% of the pupae, as compared to 27.6% in the intensively infested area.

Sopyev, O. V. [ON MORTALITY OF AVIAN CLUTCHES AND YOUNG IN A DESERT.] Izvest. Akad. Nauk Turkm. SSR Ser. Biol. no. 2. p. 82-84. 1967. [From Bird-Banding 39(1), 1968. In Russian.] WR 131: 86
Losses for open-nesting species were 47.4% and for cavity nesting species--20.5%.

Steirly, C. C. THE HAIRY WOODPECKER AS A DESTROYER OF ELM BARK BEETLES. Raven 38(1): 19-20. Mar. 1967. WR 131: 86
[Va. Div. Forestry, Waverly.] A hairy woodpecker was observed from 26 Dec. 1966 to 15 Feb. 1967 at work on an American elm infested with Scolytus multistriatus.

BIRDS--PARASITES & DISEASES

Brinck, P., A. Svedmyr, and G. von Zeipel. MIGRATING BIRDS AT OTTENBY, SWEDEN, AS CARRIERS OF TICKS AND POSSIBLE TRANSMITTERS OF TICK-BORNE ENCEPHALITIS VIRUS. Oikos 16: 88-99. 1965. [From Ibis 110(2), 1968.] WR 131: 86

Cabelli, V. J., F. A. Hodapp, E. W. Ferguson, and M. Peacock. TULAREMIA: POTENTIAL FOR TRANSMISSION BY BIRDS. Zoonoses Res. 3(2): 99-124, 6 figs. Aug. 1964. WR 131: 86
The common noddy (Anous stolidus), white-cap noddy (Anous tenuirostris), white tern (Gyris alba), and the sooty tern (Sterna fuscata) were examined for their susceptibility to infection with the Schu strain of P. tularensis administered by various routes. Relative to the mourning dove examined previously all four species were highly susceptible to infection and the lethal consequences thereof.--From abstr.

Collins, William E., Geoffrey M. Jeffery, Jimmie C. Skinner, Andrew J. Harrison, and Frank Arnold. BLOOD PARASITES OF BIRDS AT WATEREE, SOUTH CAROLINA. J. Parasitol. 52(4): 671-673. Aug. 1966. WR 131: 86
[P.O. Box 190, Chamblee, Ga.] Abstract: Of 603 birds collected at Wateree, South Carolina, 22.7% were infected with one or more blood parasites. The most prevalent infection was with Haemoproteus sp. followed by Plasmodium sp., microfilaria, Leucocytozoon sp., and Trypanosoma sp.

Foulk, J. D., and J. G. Matthysse. ORNITHONYSSUS SYLVIARUM (ACARINA: MESOSTIGMATA) FROM WILD BIRDS AND THEIR NESTS. J. Parasitol. 51(1): 126-127. Feb. 1965. WR 131: 86
[Citrus Expt. Sta., Riverside, Calif.]

James, B. L., and L. C. Llewellyn. A QUANTITATIVE ANALYSIS OF HELMINTH INFESTATION IN SOME PASSERINE BIRDS FOUND DEAD ON THE ISLAND OF SKOMER. J. Helminth. 41: 19-44. 1967. [From Ibis 110(1), 1968.] WR 131: 86
Seventeen species of helminths were found in 383 birds of 15 species found dead in severe weather in January 1967.

Kirmse, Peter. CNEMIDOCOPTIC MITE INFESTATIONS IN WILD BIRDS. Bull. Wildl. Disease Assoc. 2(4): 86-100, 7 figs. Oct. 1966. WR 131: 86
[Ontario Vet. Coll., Guelph, Canada.] Abstract: During 1965 many wild birds were examined for the lesions of "scaly leg" disease, caused by mites of the genus Cnemidocoptes. Mite infestation was found in red-winged blackbirds (Agelaius phoenicus), common grackles (Quiscalus versicolor), cowbirds (Molothrus ater) and in two new hosts for the mite, a black-capped chickadee (Parus atricapillus) and a crested flycatcher (Myiarchus crinitus). The mite was identified as closely related to Cnemidocoptes jamaicensis (Turk 1950). Mites were transmitted from diseased to healthy red-winged blackbirds by cage contact but nine other wild bird species appeared not to be susceptible during an observation period of six months, even when mites were applied to scarified skin. Attempted transmission to chickens was not successful during an observation period of six months. Male and female mites were observed in copulation. The progress of the disease, pathological findings and the histopathology of "scaly leg" disease in wild birds is described.

Krahwinkel, D. J., Jr., and J. F. McCue. WILD BIRDS AS TRANSPORT HOSTS OF SPIROCERCA LUPI IN THE SOUTHEASTERN UNITED STATES. J. Parasitol. 53(3): 650-651. June 1967. WR 131: 87
[Hilcrest Animal Hospital, Danville, Ill.]

Loomis, Richard B. A NEW SPECIES AND NEW RECORDS OF THE GENUS TORITROMBICULA (ACARINA, TROMBICULIDAE) FROM BIRDS OF SONORA, MEXICO. J. Parasitol. 52(4): 768-771, 10 figs. Aug. 1966. WR 131: 87
[Calif. State Coll., Long Beach.]

Schell, Stewart C. NEW SPECIES OF TREMATODES FROM BIRDS IN THE PACIFIC NORTHWEST. J. Parasitol. 53(5): 1000-1004, 6 figs. Oct. 1967. WR 131: 87
[Univ. Idaho, Moscow.] Abstract: Four new species of trematodes, representing four families, are described as parasites of birds collected in the Pacific Northwest. Some new host and distribution records are included for other species of trematodes from birds.

Schmidt, Gerald D., and Kenneth A. Neiland. HELMINTH FAUNA OF NICARAGUA. III. SOME ACANTHOCEPHALA OF BIRDS, INCLUDING THREE NEW SPECIES OF CENTRORHYNCHUS. J. Parasitol. 52(4): 739-745, 12 figs. Aug. 1966. WR 131: 87
[Colo. State Coll., Greeley.]

Stabler, Robert M., Portia A. Holt, and Nancy J. Kitzmiller. TRYPANOSOMA AVIUM IN THE BLOOD AND BONE MARROW FROM 677 COLORADO BIRDS. J. Parasitol. 52 (6): 1141-1144. Dec. 1966. WR 131: 87
[Colo. Coll., Colorado Springs.] Abstract: A comparison was made of the incidence of Trypanosoma avium in the blood and bone marrow of 677 Colorado birds in 139 spp. Of 549 birds in 96 spp., 334 had positive marrow and 215 had negative marrow. All 128 birds in 43 spp. showed no T. avium in the marrow. Of the 677 birds, only 33 had a trypanosome parasitemia, including four (two species) which had negative marrow. Individuals with trypanosome-positive marrow had nearly twice the incidence of other parasites in the blood (215 birds) as had those with negative marrow (115 birds). Forty-three of the 96 spp. with positive marrow represent new host records for T. avium. The sharp-tailed grouse, one of the two species which had flagellates in the blood only, also is a new host record.

Todd, Kenneth S., Jr., and David E. Worley. HELMINTH PARASITES OF THE BLACK-BILLED MAGPIE, PICA PICA HUDSONIA (SABINE, 1823), FROM SOUTHWESTERN MONTANA. J. Parasitol. 53(2): 364-367. Apr. 1967. WR 131: 87
[Utah State Univ., Logan.]

Verbeek, Nicolaas A. M., and W. Patrick Carney. PARASITES OF THE WATER PIPIT (ANTHUS SPINOLETTA ALTICOLA) FROM MONTANA. Bird-Banding 39(1): 33-36. Jan. 1968. WR 131: 87
[Univ. Calif., Berkeley.] Occurrence of 24 spp. of parasites.--Courtesy/ Paul A. Stewart.

Watson, George E., and A. Binion Amerson, Jr. INSTRUCTIONS FOR COLLECTING BIRD PARASITES. Smithsonian Inst., Museum Nat. Hist., Inf. Leafl. no. 477. 12 p., illus. 1967. WR 131: 87
[Museum Nat. Hist., Smithsonian Inst., Washington, D.C.] Description of some ecto- and endoparasites, and methods for collection and preservation.

Williamson, Francis S. L., and Robert L. Rausch. STUDIES ON THE HELMINTH FAUNA OF ALASKA. XLII. APLOPARAKSIS TURDI SP. N., A HYMENOLEPIDID CESTODE FROM THRUSHES. J. Parasitol. 51(2): 249-252, 3 figs. Apr. 1965. WR 131: 87
[Arctic Health Res. Sta., Anchorage, Alaska.]

Zagniborodova, E. N., and G. S. Belskaya. THE FLEAS OF BURROW-DWELLING BIRDS AND THEIR POSSIBLE ROLE IN PLAGUE EPIZOOTOLOGY IN TURKMENIYA. Izvest. Akad. Nauk Turkm. SSR Ser. Biol. no. 3. p. 69-74. 1965. [From Bird-Banding 38(4), 1967.] WR 131: 87

Zlotorzycka, J. MALLOPHAGA FROM BIRDS ASSOCIATED WITH THE WATER ENVIRONMENT IN POLAND. Acta Zool. Cracoviensia 6(8): 273-343. 1961. [From Bird-Banding 37(3), 1966.] WR 131: 88

Zlotorzycka, J. MALLOPHAGA PARASITIZING WITHIN THE BIRD FAMILIES COLUMBIDAE AND PHASIANIDAE IN POLAND. Acta Zool. Cracoviensia 7(5): 63-86. 1962. [From Bird-Banding 37(3), 1966.] WR 131: 88

GAME BIRDS--GENERAL

Baker, C. M. A. MOLECULAR GENETICS OF AVIAN PROTEINS--III. THE EGG PROTEINS OF AN ISOLATED POPULATION OF JUNGLE FOWL, GALLUS GALLUS L. Comparative Biochem. Physiol. 12: 389-403. 1964. WR 131: 88
[Fla. State Univ., Tallahassee.]

Campbell, Howard. TEN YEARS OF BIRD HUNTING. N. Mex. Wildl. 13(3): 18-19, illus. May-June 1968. WR 131: 88
Average annual harvest, number of hunters, and seasonal success for each of the game birds in N. Mex. are shown for 1957-1966.

Chambers, Glenn D. SUMMARY OF FOREIGN GAME BIRD PROPAGATION; 1964, AND LIBERATIONS; 1960-1964. Mo. Conserv. Comm. i + 42 p. 10 Feb. 1965. WR 131: 88
A supplement to Special Scientific Report--Wildlife no. 80 of the Bureau of Sport Fisheries and Wildlife. [WR 114: 7.]

Palmer, Walter L., and G. A. Ammann. RUFFED GROUSE AND WOODCOCK POPULATIONS ON SEVERAL SMALL STUDY UNITS OF THE GRATIOT-SAGINAW STATE GAME AREA. Mich. Dept. Conserv., Res. & Development Rept. no. 136. 5 p. 15 Feb. 1968. WR 131: 88
[Mich. Dept. Conserv., Lansing.] Openings and trails were cleared during the late 1950's and early 1960's to improve habitat for grouse, woodcock, and cottontails. Plantings of conifers and shrubs provided an understory along the edges of the clearings. Annual censuses on the two improved areas and on the two unimproved areas indicate grouse populations are increased in the habitat management areas.

QUAIL

Barnes, Grady L., and W. D. Klimstra. FOOD HABITS OF BOBWHITE QUAIL DURING JANUARY-MARCH IN SOUTHERN ILLINOIS. Trans. Ill. State Acad. Sci. 57(3): 144-157. 1964. WR 131: 88
Colinus virginianus utilization of food items in winter was determined from 195 crops of birds collected during Jan. through Mar. from southern Ill. Plant materials comprised 84.2% of the volume and animal matter 15.8%; grit occurred in 12.8% of the crops; and 12.3% were empty.--From abstr.

Bartholomew, Richard M. A STUDY OF THE WINTER ACTIVITY OF BOBWHITES THROUGH THE USE OF RADIO TELEMETRY. Occas. Pap. Adams Center Ecol. Studies no. 17. 25 p., 9 figs. 6 Oct. 1967. WR 131: 88
[Ind. Dept. Nat. Resources, 311 Liberty St., Paoli.] Movements of bobwhite (Colinus virginianus L.) coveys were determined by using external-loop antenna transmitters attached to members of 6 coveys. Average greatest dimensions of 4 covey ranges were 740 by 405 yards.

Gallizioli, Steve. QUAIL RESEARCH IN ARIZONA. Ariz. Game & Fish Dept. 12 p., 11 figs. Aug. 1965. WR 131: 88
Discussion of factors affecting quail population and hunter success.

Gallizioli, Steve. SEX AND AGE DIFFERENTIAL VULNERABILITY TO TRAPPING AND SHOOTING IN GAMBEL'S QUAIL. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 262-271. [1967.] WR 131: 89

[Ariz. Game & Fish Dept., Phoenix.] For the present a high mortality in females during the nesting season still seems to offer the most acceptable explanation for the unbalanced sex ratio in adult quail.

Packard, Gary. THE BOBWHITE IN KANSAS. Univ. Kans. Museum Nat. Hist. Misc. Publ. no. 32. 12 p., 8 figs. 16 Nov. 1962. WR 131: 89

Suggestions for habitat management to provide year-round cover and food.

Raitt, Ralph J., and Robert D. Ohmart. SEX AND AGE RATIOS IN GAMBEL QUAIL OF THE RIO GRANDE VALLEY, SOUTHERN NEW MEXICO. Southwestern Nat. 13(1): 27-33, 1 fig. 28 May 1968. WR 131: 89

[N. Mex. State Univ., Las Cruces.] Abstract: Data on sex and age were obtained for Gambel quail collected or live-trapped and released in the Rio Grande Valley near Las Cruces, New Mexico, in the period 1959-1962. Sex ratios showed a change of from nearly even among birds-of-the-year to a preponderance of males among birds that had bred at least once. The fall age ratio for all years combined was 3.29 immatures per adult. The decline in this ratio to 1.50 in spring points to considerably higher mortality among birds in their first year than in older groups. The general level of the fall age ratio is high in comparison with other populations of western quails, indicating relatively high reproductive success. Moderate variation in the fall age ratio is highly correlated with the amount of rainfall in the preceding May and June. No correlation was found with fall, winter, and/or early spring rainfall, as has been found with populations of this species in Nevada and Arizona. Lack of dependence upon the effects of winter rainfall is not fully understood, although it may be due to irrigation or to a winter climate that permits accumulation of soil moisture.

Roseberry, John L., and B. J. Verts. RELATIONSHIPS BETWEEN LENS-WEIGHT, SEX, AND AGE IN BOBWHITES. Trans. Ill. State Acad. Sci. 56(4): 208-212. 1963. WR 131: 89

[Southern Ill. Univ., Carbondale.] Lens-weights of males (Colinus virginianus) were significantly heavier than those of females.

Speake, Daniel Webster III. ECOLOGY AND MANAGEMENT STUDIES OF THE BOBWHITE QUAIL IN THE ALABAMA PIEDMONT. Ph.D. thesis, Auburn Univ. 187 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 89

Planting of food patches, controlled burning of pine woods, and regulated quail harvests were evaluated as quail management practices. Annual controlled burning resulted in an increase in fall and winter quail populations of pine woods, but the planting of food patches in recommended amounts on certain study areas had no important effect on quail populations. Effects of sport hunting on quail populations were concluded to be minor.

Thompson, Marvin P., and Robert J. Robel. SKELETAL MEASUREMENTS AND MACERATION TECHNIQUES FOR AGING BOBWHITE QUAIL. J. Wildl. Mgmt. 32(2): 247-255, 1 fig. Apr. 1968. WR 131: 89

[Southern Ill. Univ., Carbondale.] Abstract: In an attempt to develop an accurate technique for separating age-classes of bobwhite quail (Colinus virginianus), several measurements were evaluated for carcasses of 103 known-age quail. Although no one characteristic was found entirely satisfactory to separate age-classes I, II, and III, several seem worth further investigation. The four which appear most promising are (1) maceration rates of tissue in water or weak solutions, (2) secondary ossification processes on several parts of the skeleton, (3) development of primary and secondary osteons in the bone, and (4) changes in bone density.

QUAIL--Continued

Vohs, Paul, Jr., and Dale E. Birkenholz. RESPONSE OF BOBWHITE QUAIL TO MANAGEMENT ON SOME ILLINOIS STRIP-MINED LANDS. Trans. Ill. State Acad. Sci. 55(1): 13-19. 1962. WR 131: 90

An increase of bobwhites from 46 (prior to incorporation of management) to 279 in 1959-60 was recorded. An analysis of the crops of 49 quail obtained in 1959-60 indicated a dependence of the birds on plant species introduced through management.--From summ.

Waggoner, Robert Ellis. DESCRIPTION OF AN UNIDENTIFIED SPECIES OF EIMERIA IN THE BOBWHITE QUAIL. Ph.D. thesis, Auburn Univ. 68 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 90

Eimeria n. sp. is primarily a parasite of the upper small intestine but severe infections extend from duodenum to ceca. Severe infections retarded growth and 0.5 million oocysts caused 15% mortality in 11-day-old birds.

Williams, G. R. THE BREEDING BIOLOGY OF CALIFORNIA QUAIL IN NEW ZEALAND. Proc. New Zealand Ecol. Soc. 14: 88-99, 7 figs. 1967. WR 131: 90

[Wildl. Serv., Dept. Internal Affairs, Wellington, New Zealand.] Comparison of clutch sizes, nest success, and phenology of the breeding seasons of Lophortyx californicus on North and South Islands, New Zealand.

PHEASANTS

Baker, C. M. A. MOLECULAR GENETICS OF AVIAN PROTEINS--IV. THE EGG WHITE PROTEINS OF THE GOLDEN PHEASANT, CHRYSOLOPHUS PICTUS L. AND LADY AMHERST'S PHEASANT, C. AMHERSTIAE LEADBEATER, AND THEIR POSSIBLE EVOLUTIONARY SIGNIFICANCE. Comparative Biochem. Physiol. 16: 93-101. 1965. WR 131: 90

[Fla. State Univ., Tallahassee.]

Baker, C. M. Ann, Clyde Manwell, Ronald F. Labisky, and James A. Harper. MOLECULAR GENETICS OF AVIAN PROTEINS--V. EGG, BLOOD AND TISSUE PROTEINS OF THE RING-NECKED PHEASANT, PHASIANUS COLCHICUS L. Comparative Biochem. Physiol. 17: 467-499. 1966. WR 131: 90

[Fla. State Univ., Tallahassee.]

Bizeau, Elwood G. RESULTS OF HEN PHEASANT SEASONS IN IDAHO. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 211-215. [1964.] WR 131: 90

[Idaho Fish & Game Dept., Boise.] Conclusions: An estimated 237,000 hen pheasants have been put into the hunter's bag during the past four Idaho pheasant hunts. Follow-up checks on population status indicate that these were surplus birds which Nature would have removed in other ways if no hen hunting had been allowed. If we value these hens at commercial public shooting area prices of $4.00 to $5.00 per bird in the bag, then a bonus of at least a million dollars worth of pheasants has gone to the hunter during the past four pheasant seasons in Idaho.

Eley Game Advisory Station. FORESTRY AND PHEASANTS. Eley Game Advisory Sta. (formerly I.C.I. Game Service) Booklet 15. 60 p., illus. Autumn 1966. WR 131: 90

[Fordingbridge, Hampshire, England.] Forestry and game management practices are used to plan woodlots conducive to both trees and pheasants. Woods are protected by perimeter hedges and conifer belts.

Gates, John M., and Eugene E. Woehler. WINTER WEIGHT LOSS RELATED TO SUBSEQUENT WEIGHTS AND REPRODUCTION IN PENNED PHEASANT HENS. J. Wildl. Mgmt. 32(2): 234-247, 3 figs. Apr. 1968. WR 131: 90

[Wis. Conserv. Div., Madison.] Abstract: Below-normal body weights in late winter among captive ring-necked pheasant (Phasianus colchicus) hens held at the Wisconsin State Game Farm in 1963 and 1964 were associated with delayed attainment of maximum spring weights, later egg laying, and lower body weights

throughout the period of egg laying. No adverse effects were noted on daily rates of egg laying during maximum egg production, nor on egg hatchability or chick survival. These and previous studies suggest that egg quality tends to be maintained at expense of the hen's own body condition; hence egg hatchability and chick survival are seemingly unrelated to winter weights, even though egg number may be reduced depending on the time of weight loss in relation to normal onset of reproduction. Results of pen and field studies in Wisconsin indicate that delayed egg laying and higher adult hen mortality may be the principal consequences of late-winter depletion of body reserves.

Holcomb, Larry C. FURTHER OBSERVATION ON RING-NECKED PHEASANT NESTING. Bird-Banding 39(2): 133. Apr. 1968. WR 131: 91

[Creighton Univ., Omaha, Nebr.] Nine nests of ring-necked pheasants (Phasianus colchicus) were deserted after more than one hen pheasant laid eggs in the nests. Bobwhites (Colinus virginianus) laid eggs in seven pheasant nests, and at least one was deserted as a result of the parasitism. One pheasant nest contained 19 pheasant and 7 bobwhite eggs.--Courtesy/ Paul A. Stewart.

Joselyn, G. Blair, John E. Warnock, and Stanley L. Etter. MANIPULATION OF ROADSIDE COVER FOR NESTING PHEASANTS--A PRELIMINARY REPORT. J. Wildl. Mgmt. 32(2): 217-233, 2 figs. Apr. 1968. WR 131: 91

[Ill. Nat. Hist. Surv., Urbana.] Abstract: During the 4-year period 1963-66, densities of ring-necked pheasant (Phasianus colchicus) nests per acre established on unmowed roadside plots seeded to a grass-legume mixture (3.0 nests per acre) exceeded those on unmowed, unseeded roadside plots (managed control plots) (2.0 per acre) and on unseeded roadside plots where mowing was not controlled (unmanaged control plots) (1.5 per acre). During each of the 4 years seeded roadsides also had greater densities of nests per acre than any of seven other cover types on the study area, including 1.3 more per acre than unharvested hay. Rates of success for nests established on seeded plots were only slightly higher than for those established on managed and on unmanaged control plots, but higher nest densities on seeded plots resulted in significantly larger numbers of successful nests on seeded plots than on either managed control or unmanaged control plots. The hatch of pheasant nests on seeded roadsides, on a per acre basis, exceeded that in all other cover types on the study area during 3 of 4 years.

Labisky, Ronald F., and William L. Anderson. CHANGES IN DISTRIBUTION AND ABUNDANCE OF PHEASANTS IN ILLINOIS: 1958 VERSUS 1963. Trans. Ill. State Acad. Sci. 58(2): 127-135, 2 figs. 1965. WR 131: 91

[Ill. Nat. Hist. Surv., Urbana.] Relative abundance of pheasants in Apr., as reported by rural mail carriers in the 74 northernmost counties of Ill., increased from 7.8 birds per 100 miles of driving in 1958 to 9.9 birds in 1963, a 27% increase. Pheasants were most abundant in east-central Ill.

Smith, Dwight R. THE 4-H PHEASANT PROGRAM. Colo. Outdoors 17(3): 42-44, illus. May-June 1968. WR 131: 91

[Colo. State Univ., Denver.] Projects in rearing pheasant chicks are being supplemented with habitat improvement programs in Colo.

Vohs, Paul, Jr., Elizabeth A. Cerny, and A. O. Haugen. NATURALLY OCCURRING AGGLUTININS FOR PHEASANT RED BLOOD CELLS. Proc. Iowa Acad. Sci. 70: 205-209. 1963. WR 131: 91

Wehr, Everett E. THIABENDAZOLE AS AN ANTHELMINTIC FOR THE CONTROL OF GAPEWORM (SYNGAMUS TRACHEA) IN THE PHEASANT (PHASIANUS COLCHICUS). J. Parasitol. 53(4): 792. Aug. 1967. WR 131: 91

[Agr. Res. Center, Beltsville, Md.]

Brown, Robert L. RESPONSE OF SHARPTAIL BREEDING POPULATIONS TO ANNUAL CHANGES IN RESIDUAL GRASSLAND COVER. Proc. 46th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 219-222. [1966.] WR 131: 92
[Mont. Dept. Fish & Game, Highwood.]

Christensen, Glen C. NEVADA'S HIMALAYAN SNOW PARTRIDGE PROGRAM. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 73-75. [1965.] WR 131: 92
[Nev. Fish & Game Dept., Reno.]

Dorian, Henry. THE ECONOMIC VALUE OF THE CHUKAR PARTRIDGE TO NEVADA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 55-56. [1965.] WR 131: 92
[Nev. Fish & Game Comm., Reno.] "At the present time 11,000 hunters cannot begin to harvest the surplus chukars during a boom year such as 1963--but it is not being overly optimistic to visualize that the year will come when we realize the harvest of over 1,000,000 chukars during a good year and the economic and recreational values that come with it."

Evans, Keith E. HABITAT EVALUATION OF THE GREATER PRAIRIE CHICKEN IN COLORADO. M.S. thesis, Colo. State Univ. 98 p. 1964. WR 131: 92
The step point method of range analysis indicates prairie chickens in Colorado become scarce when one or more of the following occurs: the percentage of tall grass decreases; the percentage of bare ground increases; or the percentage of shrubs decreases. A habitat evaluation form designed to measure the value of an area as suitable habitat is presented.--From abstr.

Gill, R. Bruce, and Fred A. Glover. DAILY AND SEASONAL MOVEMENTS OF SAGE GROUSE. Colo. Coop. Wildl. Res. Unit Tech. Pap. 3. 6 p. June 1965. WR 131: 92

Hassler, Robbie. AN ACCOUNT OF A RUFFED GROUSE WITH A TRACTOR. Migrant 39 (1): 17, illus. Mar. 1968. WR 131: 92
[Box 1, Byrdstown, Tenn.] A ruffed grouse (Bonasa umbellus) visited the farm tractor each spring for three years, following it in the fields and displaying in the barn lot.

Hjort, Ingemar. FORTPLANTNINGSBETEENDE INOM HÖNSFÅGELFAMILJEN TETRAONIDAE. [REPRODUCTIVE BEHAVIOR IN THE TETRAONIDAE.] Vår Fågelvärld 26: 193-243. 1967. [From Bird-Banding 39(2), 1968. In Swedish with English summ.] WR 131: 92

Phillips, Robert L. RELATIONSHIP OF RUFFED GROUSE TO HABITAT TYPES IN THE WELLSVILLE MOUNTAINS, UTAH. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 216-221. [1964.] WR 131: 92
Maple-aspen and aspen cover types were the most desirable habitats for the courtship sites of drumming males. Transect data and general observations indicated that the pure maple type was most frequently used during the summer months. Grouse utilized the aspen and maple-aspen heavily during the winter, apparently because of the abundant food supply in these types.--From summ.

Ryel, L. A. EXTENSIVE RUFFED GROUSE STRIP CENSUS ESTIMATES. Mich. Dept. Conserv., Res. & Development Rept. no. 112. 7 p., 2 figs. 26 Apr. 1967. WR 131: 92
[Mich. Dept. Conserv., Lansing.] Pre-season minimum fall population was computed by combining the spring population with the legal harvest of the previous fall.

Schladweiler, Philip. FEEDING BEHAVIOR OF INCUBATING RUFFED GROUSE FEMALES. J. Wildl. Mgmt. 32(2): 426-428. Apr. 1968. WR 131: 92
[Mont. State Univ., Bozeman.]

Stabler, Robert M., Nancy J. Kitzmiller, Laurence N. Ellison, and Portia A. Holt. HEMATOZOA FROM THE ALASKAN SPRUCE GROUSE, CANACHITES CANADENSIS. J. Parasitol. 53(2): 233-234. Apr. 1967. WR 131: 93
[Colo. Coll., Colorado Springs.]

Stabler, Robert M., Nancy J. Kitzmiller, and Robert B. Weeden. BLOOD PARASITES IN ROCK PTARMIGAN FROM EAGLE SUMMIT, ALASKA. J. Parasitol. 53(6): 1297. Dec. 1967. WR 131: 93
[Colo. Coll., Colorado Springs.]

Stirling, Ian. AGGRESSIVE BEHAVIOR AND THE DISPERSION OF FEMALE BLUE GROUSE. Canadian J. Zool. 46(3): 405-408, 1 fig. May 1968. WR 131: 93
[Canterbury Univ., Christchurch, New Zealand.]

TURKEY

Bailey, R. W., and K. T. Rinell. HISTORY AND MANAGEMENT OF THE WILD TURKEY IN WEST VIRGINIA. W. Va. Dept. Nat. Resources, Div. Game & Fish Bull. no. 6. ix + 59 p., 18 figs. 1968. WR 131: 93
Summary and conclusions: Increases in turkey populations in recent decades were primarily the result of: (i) habitat improvement through a "return of the forests"; (ii) increased protection resulting from changed socio-economic conditions, altered patterns of hunting, restrictive laws, and educational patterns, and (iii) the restocking of unoccupied range by transplanting from established populations. Surprisingly, there is little real knowledge about the range of environments acceptable to the turkey, nor the potential of the bird itself. The present abundance of wild stock, its inherent superiority in establishing populations and the development of means for capturing it in quantity, make game-farms or the release of game-farm stock inadvisable. Some people support a game-farm operation on the questionable thesis that it has a beneficial public relations effect. The greatest problems facing the turkey manager are those of determining the productive capability of the range under various management procedures and regulating hunting to obtain optimum harvests. The solution lies in the judicious use of time, money and the best talent available.

Lyon, Leroy, and Steve Capel. WILD TURKEY--KANSAS' NEXT BIG GAME. Kans. Fish & Game 25(2): 8-11, illus. Spring 1967. WR 131: 93
Rio Grande turkeys live-trapped from Texas were released on 27 Jan. 1966 at 11 preselected sites. The total flock has grown from 125 to between 750 and 1,000.

MacDonald, Duncan. TURKEY HEN:POULT RATIOS--ARE THEY AN ACCURATE INDEX OF PRODUCTION? Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 206-210. [1964.] WR 131: 93
[N. Mex. Dept. Game & Fish, Albuquerque.] "In summary, four sets of data collected in separate areas, in different ways, and on two races of wild turkeys, indicate that hen:poult ratios obtained from brood observations are often a poor estimate of total production. Extreme caution should be used in applying this index to management."

Prestwood, Annie K., and W. M. Reid. DREPANIDOTAENIA WATSONI SP. N. (CESTODA, HYMENOLEPIDIDAE) FROM THE WILD TURKEY OF ARKANSAS. J. Parasitol. 52(3): 432-436, 8 figs. June 1966. WR 131: 93
[Univ. Ga., Athens.]

Proud, John Charles. WILD TURKEY STUDIES IN NEW YORK BY RADIO-TELEMETRY. M.S. thesis, Cornell Univ. ix + 88 p., 17 figs. Jan. 1968. WR 131: 94
[N.Y. Conserv. Dept., Stamford, N.Y.] Feral, semi-feral, and game-stock turkeys in southern New York equipped with specially-developed radio transmitters were studied for reproduction, nesting, and brood-rearing habits, and movements and dispersal. The 26 Mc/s transmitters weighed approximately 200 grams. Feral turkeys in the southwest were more mobile, having ranged over more than 25 square miles during their 63 days of radio surveillance. Domestic stock in eastern New York was less productive and less wary of man than the wild-trapped stock.

Stoddard, Herbert L., Sr. MAINTENANCE AND INCREASE OF THE EASTERN WILD TURKEY ON PRIVATE LANDS OF THE COASTAL PLAIN OF THE DEEP SOUTHEAST. Tall Timbers Res. Sta. Bull. no. 3. iv + 49 p. June 1963. WR 131: 94
[Tall Timbers Res. Sta., Tallahassee, Fla.] Discussion of management practices from N.C. through Miss. during the past 25 years, in areas of similar ecology. Includes origin of management, regulation of kill, control of wild turkey range, and multiple range land use.

DOVES & PIGEONS

Akkerman, R. ZUR BIOLOGIE DER RINGELTAUBE COLUMBA P. PALUMBUS L. [ON THE BIOLOGY OF THE WOOD PIGEON COLUMBA P. PALUMBUS L.] Oldenburger Jahrbuch 64: 43-81. 1965. [From Ibis 110(1), 1968. In German with English summ.] WR 131: 94

Cabelli, V. J., E. W. Ferguson, and R. C. McElmury. TULAREMIA: EXPERIMENTAL INFECTION IN THE MOURNING DOVE. Zoonoses Res. 3(2): 93-98, 1 fig. Aug. 1964. WR 131: 94
Abstract: The mourning dove, Zenaidura macroura, though being capable of being infected with large doses of Pasteurella tularensis via the respiratory route, is relatively resistant to the disease. This resistance manifests itself as a low mortality to a relatively high (10^5 organisms) challenge dose. Proliferation of the organisms in the tissues is minimal, as is the excretion of the organisms into the blood and/or the cloaca.

F[inlay], E[ddie]. WE HAD MORE DOVES, STATISTICIANS CLAIM. S.C. Wildl. 15 (3): 6. Summer 1968. WR 131: 94
Includes information on the number of dove hunters, total trips per season, and dove harvest for the 16 states comprising the Eastern Management Area during 1966-67 and 1967-68.

Murton, R. K., and A. J. Isaacson. PRODUCTIVITY AND EGG PREDATION IN THE WOODPIGEON. Ardea 52(1-2): 30-47. 1964. [From Bird-Banding 36(1), 1965.] WR 131: 94
"Columba palumbus."

Pinder, R. THE CAPE PIGEON DAPTION CAPENSIS LINNAEUS AT SIGNY ISLAND, SOUTH ORKNEY ISLANDS. British Antarctic Surv. Bull. 8: 19-47. 1966. [From Ibis 110(2), 1968.] WR 131: 94
A detailed description of the distribution and breeding biology of this species.

Saunders, George B. SEVEN NEW WHITE-WINGED DOVES FROM MEXICO, CENTRAL AMERICA, AND SOUTHWESTERN UNITED STATES. N. Am. Fauna no. 65. iv + 30 p., 4 figs. May 1968. Available from Supt. Documents, GPO, at 20¢. WR 131: 94
Abstract: Seven new subspecies of Zenaida asiatica are described: Z. a. peninsulae of the Yucatán Peninsula, México; Z. a. grandis of the upper Big Bend area, central western Texas; Z. a. monticola chiefly of the Mexican interior plateaus and highlands; Z. a. palustris of the central and southern

Pacific coastal plains of México; Z. a insularis of the Tres Marías Islands, Nayarit, México; Z. a. collina of Central America, chiefly on the Pacific Piedmont and coastal plain from the Isthmus of Tehuantepec, México to Costa Rica; and Z. a. panamensis of the northeast coast of the Azuero Peninsula, Panamá.

Silovsky, Gene D., Howard M. Wight, Leonard H. Sisson, Timothy L. Fox, and Stanley W. Harris. METHODS FOR DETERMINING AGE OF BAND-TAILED PIGEONS. J. Wildl. Mgmt. 32(2): 421-424, 2 figs. Apr. 1968. WR 131: 95
[Oreg. State Univ., Corvallis.] Abstract: Wings from band-tailed pigeons (Columba fasciata), collected during the 1966 Oregon and California hunting seasons, were studied to identify characters useful in determining age. Adults were identified by the presence of cloacal sex characters and in many cases a thickened crop. Immatures lacked cloacal sex characters and had glandular bursas. Wing plumage coloration and wear plus primary molt patterns permitted age identification September through October and were used to construct a key. Age determinations made with this key averaged 97% accurate. The key was only partially usable during December when some immatures had attained adult plumage. The presence (immature) or absence (adult) of a glandular bursa was 100% accurate in determining age from September through December. Bursal depth and the presence or absence of a neck ring are not valid indicators of age.

Van Troostwijk, W. J. Doude. SOME ASPECTS OF THE WOODPIGEON POPULATION IN THE NETHERLANDS. Ardea 52(1-2): 15-29, 4 figs. 1964. [From Bird-Banding 36 (1), 1965.] WR 131: 95
"Columba palumbus."

Wilson, N. NEW RECORDS AND A NEW SPECIES OF MESONYSSUS (MESOSTIGMATA: RHINONYSSIDAE) FROM PIGEONS AND DOVES (COLUMBIFORMES: COLUMBIDAE). J. Parasitol. 52(6): 1210-1213, 8 figs. Dec. 1966. WR 131: 95
[Bernice P. Bishop Museum, Honolulu, Hawaii.]

WATERFOWL

Baker, C. M. A., and H. C. Hanson. MOLECULAR GENETICS OF AVIAN PROTEINS--VI. EVOLUTIONARY IMPLICATIONS OF BLOOD PROTEINS OF ELEVEN SPECIES OF GEESE. Comparative Biochem. Physiol. 17: 997-1006. 1966. WR 131: 95
[Fla. State Univ., Tallahassee.] "Anser cygnoides, A. fabalis brachyrhynchus, A. albifrons frontalis, A. erythropus, A. anser rubrirostris, A. indicus, A. canagicus, A. coerulescens, Branta canadensis interior, B. c. maxima, B. c. parvipes, B. c. occidentalis, B. c. fulva, B. c. hutchinsii, B. c. minima, B. leucopsis, B. ruficollis, and a hybrid B. canadensis parvipes X A. c. coerulescens."

Balát, Frantisek. OM KVÄLL SOCH MORGONFÖRFLYTTNINGAR HOS ÄNDER PÅ FALSTERBO-HALVÖN. [EVENING AND MORNING MOVEMENTS OF DUCKS ON THE FALSTERBO PENINSULA.] Vår Fågelvärld 26: 97-110. 1967. [From Bird-Banding 39(1), 1968. In Swedish with German summ.] WR 131: 95

Banks, Richard C. RECENT RECORDS OF WATER BIRDS IN THE DESERT. Bull. S. Calif. Acad. Sci. 66(2): 125-128. 1967. WR 131: 95
[Bur. Sport Fisheries & Wildl., U.S. Natl. Museum, Washington, D.C.] Reports of Gavia immer, Branta canadensis, B. nigricans, Anas platyrhynchos, Aythya affinis, and Melanitta perspicillata in early 1966 came from the desert areas in Calif.

Beer, J. V. THE TRACHEAE OF HYBRID ANATIDAE. Bull. British Ornithol. Club 88(1): 4-15, 8 figs. Jan. 1968. WR 131: 95
"This paper is concerned with a limited number of tracheae from male hybrids of known or putative parentage in the tribes Anatini, Aythyini and Cairinini, all of which show a sexual dimorphism of the syrinx."

Benson, Dirck. WHAT'S HAPPENING TO BLACK DUCKS? [N.Y.] Conservationist 21 (2): 14-15, 37. Oct.-Nov. 1966. WR 131: 96

[N.Y. Conserv. Dept., Albany.] Despite shortened seasons and reduced bag limits, black duck populations continue to decrease. The decline may be caused by pesticides, pollution, lead poisoning, and habitat reduction.

Benson, Dirck, and Lee W. DeGraff. DISTRIBUTION AND MORTALITY OF REDHEADS BANDED IN NEW YORK. N.Y. Fish & Game J. 15(1): 52-70. Jan. 1968. WR 131: 96

[N.Y. Conserv. Dept., Albany.] The data suggest that terminating the open season prior to late Dec. would reduce the harvest of redheads only slightly while reducing that of canvasbacks substantially. The sex ratio for all birds averaged 78.5 males to 21.5 females, and a sample of first-year birds showed 75.8 males to 24.2 females. The proportion observed during aerial surveys was similar. Mortality rates for females during their first year, and usually their second year, were higher than those for males although the total rates were about equal. Evidence indicates that a high harvest of females occurs before the birds reach N.Y. and that males predominate among both juveniles and adults throughout the fall. In N.Y., adult females were found to be 1.38 times as vulnerable to gunning as adult males. There is need for hunting regulations that would reduce the disproportionate loss of females.--From abstr.

Bianki, V. V., V. N. Karpovich, V. V. Makarov, and I. P. Tatarinkova. [ECOLOGY OF THE COMMON EIDER IN THE NON-NESTING PERIOD.] Trudy Kandalakshskogo Gosudarstvennogo Zapovednika 5: 5-39. 1967. [From Bird-Banding 39(1), 1968. In Russian.] WR 131: 96

Brakhage, George K. WATERFOWL MANAGEMENT / PART I. Mo. Conservationist 28 (10): 1-3, illus. Oct. 1967. WR 131: 96

General information on important foods and preferred habitats of waterfowl in Mo.

Brakhage, George K. WATERFOWL MANAGEMENT / PART II. Mo. Conservationist 28(11): 13-16, illus. Nov. 1967. WR 131: 96

Guidelines for water depth, flooding, draw-down, fertilization, weed and fish control, and forest management in duck marsh development projects.

Carrick, R., and S. E. Ingham. ANTARCTIC SEA-BIRDS AS SUBJECTS FOR ECOLOGICAL RESEARCH. Proc. Symposium Pacific & Antarctic Sciences. J.A.R.E. Sci. Repts. Spec. Issue no. 1. p. 151-184. 1967. [From Ibis 110(2), 1968.] WR 131: 96

A review of the Antarctic and the state of knowledge of the birds, their distribution and their population ecology. Current work is summarized.

Cheltsov-Bebutov, A. M. [ON MODES OF WATERFOWL UTILIZATION (FOR SPORT OR THE MARKET?).] Ornitologiya 8: 47-63. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 96

Coulter, Malcolm W., and William R. Miller. NESTING BIOLOGY OF BLACK DUCKS AND MALLARDS IN NORTHERN NEW ENGLAND. Vt. Fish & Game Dept. Bull. no. 68-2. ix + 74 p., 19 figs. 1968. WR 131: 96

Breeding behavior of Anas rubripes and A. platyrhynchos was observed during several studies in Maine and Vt. during 1938-1964. Nesting began during early Apr., with peak nest-building activity occurring the last half of the month. Mean size of 620 black duck clutches was 9.5; mallards averaged 9.6 eggs per clutch. Further data on nest construction, choice of nesting cover, and renesting attempts and behavior indicates differences and similarities between species and among individuals. The information presented is discussed in relation to management of cover, predators, and human disturbance.

Dane, Charles W. AGE DETERMINATION OF BLUE-WINGED TEAL. J. Wildl. Mgmt. 32(2): 267-274, 3 figs. Apr. 1968. WR 131: 97

[Northern Prairie Wildl. Res. Center, Jamestown, N. Dak.] Abstract: Primary feather length, markings on the greater secondary coverts, and the degree of bill spotting were evaluated as characters for use in the spring to distinguish first-year, blue-winged teal (Anas discors) females from older ones. The length of the 10th primary feather did not prove suitable to separate different aged females. Extreme primary lengths might be used to determine the age of some males. In females that have been through a post-nuptial molt the greater secondary coverts have a more symmetrical, and more acutely angled, white, inverted "V"-marking. Any female with a "V" subjectively classified as good has gone through at least one postnuptial molt, and a female with no sign of a "V" on the coverts is a juvenile or yearling before her first postnuptial molt. By measuring the longest bill spot on the upper mandible of each known-age female, it was possible to determine the age of some female teal. Because the spots fade during the breeding season, no lower size limit could be set to delineate first-year females at that time of year, but any nest-trapped hen with a spot longer than 10 mm was considered to be older than 1 year. Upper and lower limits were also established to distinguish some yearlings and 2-year-olds in the fall.

Davies, S. J. J. F. MAGPIE GOOSE BEHAVIOUR. Australian Museum Magazine 13(10): 314-318, 5 [figs.]. June 1961. WR 131: 97

Hand-reared goslings were tested for reactions to experimental situations involving pecking responses, silhouette discrimination, and platform-building.

de Lannoy, Jacques. ZUR PRÄGUNG VON INSTINKHANDLUNG (UNTERSUCHUNGEN AN STOCKENTEN ANAS PLATYRHYNCHOS L. UND KOLBENENTEN NETTA RUFINA PALLAS). [IMPRINTING AND SPECIES-SPECIFIC FIXED ACTION PATTERNS. (RESEARCHES ON MALLARDS AND RED-CRESTED POCHARDS).] Z. Tierpsychol. 24(2): 162-200. 1967. [From Bird-Banding 39(1), 1968. In German.] WR 131: 97

de Ridder, J., G. Huyskens, P. Maes, H. Van Der Vloet, and H. Voet. GANZEN IN DE ANTWERPSE POLDER TIJDENS DE WINTER 1962-1963. [OBSERVATIONS ON GEESE IN THE POLDERS OF ANTWERP DURING THE WINTER 1962-1963.] Giervalk 53: 485-488. 1963. [From Bird-Banding 36(1), 1965. In Dutch with French summ.] WR 131: 97

Devine, T., and T. J. Peterle. POSSIBLE DIFFERENTIATION OF NATAL AREAS OF NORTH AMERICAN WATERFOWL BY NEUTRON ACTIVATION ANALYSIS. J. Wildl. Mgmt. 32 (2): 274-279. Apr. 1968. WR 131: 97

[Ohio State Univ., Columbus.] Abstract: The possibility of using neutron activation analyses to differentiate sources of North American waterfowl was investigated by irradiating rectrices and wing bones of birds collected in several localities, and comparing the characteristic gamma-ray spectra. Canada goose (Branta canadensis) rectrices from Oregon specimens could be distinguished from those taken in Wisconsin and Colorado based on higher levels of Mn. Mallard (Anas platyrhynchos), black duck (A. rubripes), and blue-winged teal (A. discors) wing bones from Wisconsin, Colorado, and New Brunswick could not be clearly identified as to locality from levels of Ca, Al, Na, Mn, and Cl.

Festetics, A. ZUR ÖKOLOGIE DER REIHERENTE AYTHYA FULIGULA, EINES NEUEN BRUTVOGELS IN ÖSTERREICH. [ON THE ECOLOGY OF THE TUFTED DUCK AYTHYA FULIGULA, A NEW BREEDING BIRD IN AUSTRIA.] Vogelwelt 88: 43-58. 1967. [From Ibis 110 (1), 1968. In German.] WR 131: 97

Forty pairs nesting on artificial fish ponds--a new habitat-type for tufted duck.

Fischer, Helga. DAS TRIUMPHGESCHREI DER GRAUGANS (ANSER ANSER). [THE TRIUMPH CEREMONY OF THE GREY-LAG GOOSE.] Z. Tierpsychol. 22(3): 247-304. 1965. [From Bird-Banding 36(4), 1965. In German with English summ.] WR 131: 97

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Fog, Mette. AN INVESTIGATION ON THE BRENT GOOSE (BRANTA BERNICLA) IN DENMARK. Danish Rev. Game Biol. 5(1): 1-40, 15 figs. 1967. In English with Danish summ. WR 131: 98

Status of Branta bernicla is examined by means of bag data from Danish sportsmen, ringing and census data procured by the Game Biology Station, counts of Brent geese in Danish waters, and data on 168 geese collected in 1963 and 1964.

Fredrickson, Leigh H. MEASUREMENTS OF COOTS RELATED TO SEX AND AGE. J. Wildl. Mgmt. 32(2): 409-411, 4 figs. Apr. 1968. WR 131: 98

[Univ. Mo., Puxico.] Abstract: Measurements of wing, culmen-shield, and metatarsus-midtoe were taken on 299 American coots (Fulica americana) which died during severe spring weather in Iowa. Sexes could not be consistently determined by differences in length of culmen-shield, metatarsus-midtoe, or wing. Determination of age by bursal depth proved unsatisfactory, but width and conformation of the bursa were reliable.

Gavutis, George W., Jr. ESTIMATING DUCK PRODUCTION USING MARKED-UNMARKED RATIOS OF NIGHTLIGHTED DUCKLINGS. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 79-87. 1968. WR 131: 98

[Iroquois Natl. Wildl. Refuge, Basom, N.Y.] Abstract: An investigation conducted on the Brigantine National Wildlife Refuge, in Oceanville, New Jersey during the summer of 1966 demonstrates that there is considerable potential for measuring duck production by using marked-unmarked ratios of unfledged ducklings captured by nightlighting. Ducklings (896) were captured and banded during several hours of six different nights, with the aid of an air-thrust boat. On the seventh night, banded-unbanded ratios were tallied and used to compute a Lincoln index (1930) or Petersen ratio (1896). When the index results were compared with brood count data, it was found that production was at least 2.2 times higher than previously estimated for several of the major duck species. In addition, ducklings of two species, not seen during brood counts, were also captured.

Gibbs, Richard M. JUVENILE MORTALITY IN THE COMMON GOLDENEYE, BUCEPHALA CLANGULA AMERICANA, IN MAINE. Maine Field Nat. 18(5): 67-68. May 1962. WR 131: 98

From an original population of 77 young, only 22 birds reached flying age, a 71.5% mortality of juveniles. Specific mortality factors and their relative importance could not be determined.

Gottlieb, Gilbert. SPECIES RECOGNITION IN GROUND-NESTING AND HOLE-NESTING DUCKLINGS. Ecology 49(1): 87-95, 4 figs. Winter 1968. WR 131: 98

[Dorothea Dix Hospital, Raleigh, N.C.] Maternal auditory stimulation played a more potent role than visual stimulation in attracting wood duck (Aix sponsa) and mallard (Anas platyrhynchos) ducklings. However, the response was stronger when both visual and auditory stimulation occurred concurrently than when auditory stimulation occurred alone. "The maternal call would seem to function as the selective part of the audiovisual perceptual mechanism for species-recognition, assuring that the approach aspect of the following-response will be both (1) prompt and (2) addressed to the biologically appropriate object."--From summ. Courtesy/ Paul A. Stewart.

Grieb, Jack R. EFFECT OF SEASON LENGTH AND BAG SIZE ON CENTRAL FLYWAY DUCK HARVEST. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 197-205, 5 figs. [1964.] WR 131: 98

[Colo. Game, Fish & Parks Dept., Fort Collins.]

Hanson, Harold C., and Robert L. Jones. USE OF FEATHER MINERALS AS BIOLOGICAL TRACERS TO DETERMINE THE BREEDING AND MOLTING GROUNDS OF WILD GEESE. Ill. Nat. Hist. Surv. Biol. Notes no. 60. 8 p., 2 figs. Feb. 1968. WR 131: 99

[Ill. Nat. Hist. Surv., Urbana.] The origin or birthplace of individual birds or populations in autumn and winter can be ascertained by determining the chemical composition of the soils and food plants from breeding areas, as well as feathers of the populations concerned. The vane portions of the primary feathers are washed in distilled water and dried at 60° C. for 24 hours. Analytical determinations are performed with a Jarrell-Ash direct reading emission spectrograph on an acid solution (containing 4.5% HCl and 1.5% HNO_3, both by volume, and 1% lithium as LiCl) of the dry-ashed (500° C.) sample. The content of each element is estimated from working curves obtained from reference plant samples.

Hein, Dale. SPRING WOOD DUCK POPULATION OF MISSISSIPPI RIVER POOL 10. Iowa Acad. Sci. 72: 218-223, 2 figs. 1965. WR 131: 99

Aix sponsa populations were studied during the springs of 1960-1964. The major nesting areas were along the lower tributary valleys and on oak-covered bluffs. The census revealed 480 pairs in 1962 and 530 pairs in 1963.

Imber, M. J., and G. R. Williams. MORTALITY RATES OF A CANADA GOOSE POPULATION IN NEW ZEALAND. J. Wildl. Mgmt. 32(2): 256-267. Apr. 1968. WR 131: 99

[Wildl. Serv., Dept. Internal Affairs, Wellington, New Zealand.] Abstract: Between 1957 and 1967 inclusive, 14,435 Canada geese (Branta canadensis) were banded in molt at Lake Ellesmere, New Zealand. Apart from a negligible proportion of residents, the birds were non-breeders, aged 1 year and older, of a migratory population. The first year recovery rate of bands from geese shot between 1957-62 was 4.1%; between 1963-66 it was 13.6%. Higher hunting pressure in the latter period was caused by annual special shooting seasons introduced to control the population. Mean annual mortality in the former period was 17%, comprising approximately 10% by natural mortality and 7% by hunting. First-year mortality is not known. Productivity is estimated to have been two young per pair from the age of 3 years. Mortality of about 75% in their first year would have stabilized the population which was certainly increasing at that time. In the latter period the mean annual mortality was 33% for birds over 3 years of age. Those between 1 and 3 years of age were subjected to higher hunting pressure but an estimated mortality rate for yearlings was the same as for adults. Up to 70% of geese aged over 1 year dying in this period were shot. Productivity of almost three young per pair from the age of 3 years would have maintained this population. Reasons are given for believing that adequate productivity could have been achieved.

Isakov, Yu. A., editor. WATERFOWL RESOURCES OF THE U.S.S.R. AND THEIR DEVELOPMENT / SUMMARIZED INFORMATION NO. 5. Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). TT 67-51263. iii + 49 p., illus. 1967. Russian original published by Byuro Tekh. Inform. Glavnogo Upravleniya Okhotnich'e Khoz. & Zapoved. Pri Sov. Min. RSFSR in 1965. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] WR 131: 99

Contents: Summary of papers and basic questions discussed at the conference on the geography and state of waterfowl resources in the USSR, E. E. Syroechkovskii; Program of research, organization and economic measures for increasing waterfowl resources in the USSR and rationalization of their exploitation, T. P. Shevareva, and others; Preparation of traps, S. G. Priklonskii; Instructions for ringing newly-hatched ducklings and fledgling coots, G. T. Lein'sh, and others; and Bibliography on methods of trapping and marking waterfowl.

Jahnukainen, M. ON THE SPRING MIGRATION OF THE WHOOPER SWAN (CYGNUS CYGNUS) IN THE HELSINKI REGION IN THE YEARS 1950-61. Ornis Fennica 40: 1-12. 1963. [From Ibis 110(2), 1968.] WR 131: 99

Johnson, Leon L. THE COMMON GOLDENEYE DUCK AND THE ROLE OF NESTING BOXES IN ITS MANAGEMENT IN NORTH-CENTRAL MINNESOTA. J. Minn. Acad. Sci. 34(2): 110-113. 1967. WR 131: 100

[2114 Bemidji Ave., Bemidji, Minn.] Abstract: Evaluation of use of nesting boxes of two kinds by the common goldeneye duck (Bucephala clangula americana) in a wooded area of north-central Minnesota, where these ducks are fairly abundant, shows 69 to 80% of the usable boxes were eventually used. Wooden boxes were better accepted than metal boxes, but the latter provided greater protection from predators. Calculations from band recoveries indicate a hunting bag of about 36% for birds during their first year. This is a high rate of harvest, especially since goldeneyes do not breed until their second year. After the first year, however, mortality is low, probably because adults frequent large open water lakes which provide some protection from hunting. Considerable homing by adult hens to previously-used nesting boxes was noted.

Jordan, James S. INFLUENCE OF DIET IN LEAD POISONING IN WATERFOWL. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 143-170, 1 fig. 1968. WR 131: 100

[NE Forest Expt. Sta., Warren, Pa.] Abstract: Results of controlled experiments with Pekin ducks, captive wild mallards (Anas p. platyrhynchos), game-farm mallards, lesser scaup (Aythya affinis), and Canada geese (Branta canadensis) showed the diet to be the most important variable modifying the effects of ingested shot pellets. Results of experiments designed to test the influence of certain nutritional elements in the diet showed that these alone were not the controlling factor in modifying the effects of lead poisoning. Results of other experiments indicated that the effect of lead was influenced by the physical form, or size and hardness, of food items in the diet. Measurements of the amount of food eaten revealed that symptoms of lead poisoning failed to appear in birds that maintained a normal or nearly normal rate of food intake. Also birds that normally consumed an above-average amount of food were less susceptible to the effects of lead. The effect of lead differed within sex and age groups, by seasons, and between wild mallards and game-farm mallards; and the normal rate of food intake appeared to be the controlling factor in determining these differences. The physical form of items in the diet determined, to a great extent, the level of food intake in normal captive waterfowl.

Kadlec, John A. WATERFOWL BREEDING ON A SMALL MICHIGAN IMPOUNDMENT. Mich. Dept. Conserv. Res. & Development Rept. no. 77. 27 p., 5 figs. 6 Dec. 1966. WR 131: 100

[260 School St., Acton, Mass.] Several methods of measuring pair use and brood production were tested. Counts made by a moving observer, called circuit counts, were compared with stationary observations from selected points in determining numbers of pairs and broods. Individual counts by both methods were very unreliable, but the sum of a series of counts by either method gave an acceptable measure of population trends. Circuit counts were slightly more efficient. In both 1961 and 1962, the total population of pairs was estimated between 20 and 23 on about 70 acres. Mallards predominated in the breeding population. Wood ducks, black ducks, blue-winged teal and hooded mergansers also nested on the study areas. Total brood production was calculated using a formula based on identifying repeat observations of broods in a series of brood counts. Calculated estimates of 19 and 29 broods in 1961 and 1962 respectively, compared closely with known minimums of 18 and 26 broods present.--From abstr.

Kinsky, Arthur M. WHISTLING SWANS IN UTAH. Proc. 44th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 191-196. [1964.] WR 131: 100

[Utah State Dept. Fish & Game, Salt Lake City.]

Knott, Norman P., and Wendell H. Oliver. POSSIBLE MEANS OF EVALUATING WILDLIFE MANAGEMENT PROGRAMS. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 241-246. [1967.] WR 131: 100

[Wash. Dept. Game, Olympia.] Analysis of waterfowl populations and harvest in the tidal delta of the Skagit River.

Krechmar, A. V., and V. V. Lenovich. [DISTRIBUTION AND BIOLOGY OF THE RED-BREASTED BRANT IN THE BREEDING SEASON.] Problemy Severa 11: 229-234. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 101

A summary of what is known of the breeding range and life history of Rufibrenta ruficollis, a strikingly colored anatid. This account concludes that it is a relict species on the way to extinction. Its habits provide another symbiotic phenomenon in locating its nests near those of the peregrine falcon, apparently for protection from the arctic fox, "the most dangerous enemy of tundra birds."

Lamb, Samuel H., and Robert H. Stewart. FARMING FOR WATERFOWL IN NEW MEXICO. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 292-295. [1967.] WR 131: 101

[N. Mex. Dept. Game & Fish, Santa Fe.]

Lebret, T. THE PAIR FORMATION IN THE ANNUAL CYCLE OF THE MALLARD, ANAS PLATYRHYNCHOS L. Ardea 49(3/4): 97-158, 1 fig. 1961. In English with Dutch summ. WR 131: 101

Regular counts of the number of pairs in a population of mallards were taken from Sept. to Feb. 1956-57. Pairs were stable from their formation until the reproductive season. Trios and other irregularities are described; the mechanism of pair formation and the significance of the social display are discussed.

Lebret, T. OECOLOGISCHE SUCCESSIE EN WATERWILDCONCENTRATIES. [ECOLOGICAL SUCCESSIONS AND WILDFOWL CONCENTRATIONS.] Ardea 52(1-2): 48-92. 1964. [From Bird-Banding 36(1), 1965. In Swedish with English summ.] WR 131: 101

The status and development of wildfowl areas in the Netherlands is of concern especially because of ecological successions related to dike constructions. Waterfowl generally require a sufficient accessible food supply, shallow waters, cover, and lack of disturbance. These factors are interrelated in various ways: for example, food plants depend upon shallow waters where, in turn, they are accessible to the birds.

Lehtonen, L. [ON THE MIGRATION AND THE OCCURRENCES AT THE BEGINNING OF THE BREEDING SEASON OF GAVIA ARCTICA.] Ornis Fennica 42: 76-89. 1965. [From Ibis 110(2), 1968. In Finnish with German summ.] WR 131: 101

Lensink, Calvin J. NECKBANDS AS AN INHIBITOR OF REPRODUCTION IN BLACK BRANT. J. Wildl. Mgmt. 32(2): 418-420. Apr. 1968. WR 131: 101

[Bur. Sport Fisheries & Wildl., Bethel, Alaska.] Abstract: Examination of 52 female black brant (Branta bernicla nigricans), recaptured at the location of banding on the nesting grounds 1 and 2 years after they were marked with light green neckbands, indicated that their nesting success was significantly poorer than that of leg-banded controls or unbanded brant. No other aberrant behavior or evidence of physical impairment was noted.

Madsen, Carl R. A PILOT EXPERIMENT TO TEST THE INFLUENCE OF IMPRINTING AND EARLY LEARNING ON HABITAT SELECTION BY DUCKS. Mich. Dept. Conserv., Res. & Development Rept. no. 138. 5 p. 1 May 1968. WR 131: 101

[U.S. Fish & Wildl. Serv., Fergus Falls, Minn.] Twenty-six ducks were hatched, divided into three groups and placed in 2-foot high pens with various black and white geometrical configurations painted on the pen walls. After two weeks, the ducks were removed from the conditioning pens, and three weeks later were tested for preferences for their "home" geometrical figures or strange-wall patterns. The results of 30-min. tests indicated that no correlation existed between the early exposure and later selection of surroundings under the conditions of this experiment.--From abstr.

Marcström, Vidar. MALLARD DUCKLINGS (ANAS PLATYRHYNCHOS L.) DURING THE FIRST DAYS AFTER HATCHING. A PHYSIOLOGICAL STUDY WITH ECOLOGICAL CONSIDERATIONS AND A COMPARISON WITH CAPERCAILLIE CHICKS (TETRAO UROGALLUS L.). Viltrevy 4(5): 343-370, 10 figs. 1966. In English with Swedish summ. WR 131: 102

Detailed studies of body weights, yolk sac weights, liver and fat of mallard ducklings, followed by an ecological discussion of evolution and/or semi-domestication, and cold-hardiness and significance of internal food reserves in mallard ducklings and capercaillie chicks.

McDougle, Harold C., and Richard W. Vaught. AN EPIZOOTIC OF ASPERGILLOSIS IN CANADA GEESE. J. Wildl. Mgmt. 32(2): 415-417. Apr. 1968. WR 131: 102

[Univ. Mo., Columbia.] Abstract: An epizootic in Canada geese (Branta canadensis) occurred at the Swan Lake National Wildlife Refuge, Chariton County, Missouri, in 1966. Approximately 2,000 geese died during the first 18 days of October. Losses were localized and did not spread to 75,000 other geese on the refuge. Respiratory distress was common among the few sick geese that were observed in the field. All except two geese examined at the laboratory had varying degrees of pulmonary aspergillosis. Three distinct phases of mycotic pneumonia were recorded.

McGilvrey, F. B. FOOD HABITS OF SEA DUCKS FROM THE NORTH-EASTERN UNITED STATES. Wildfowl Trust 18th Ann. Rept. p. 142-145. 1967. WR 131: 102

[Patuxent Wildl. Res. Center, Laurel, Md.] The 16 most important foods, based on occurrence and volume from 274 gizzards, are listed for American eider, white-winged scoter, surf scoter, American black scoter, and long-tailed duck.--From summ.

Meigs, Robert C., and Carroll A. Rieck. MERGANSERS AND TROUT IN WASHINGTON. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 306-318. [1967.] WR 131: 102

[Wash. Dept. Game, Olympia.] "The ecological role of the merganser as a predator on fish has both detrimental and beneficial effects. Evidence of damage by mergansers is clouded by other causes of loss including parasitism. By no means should the bird be cast as a villain; the bird is too important a member of the native fauna to be generally reduced. Harassment and reduction on limited, specified waters should be the objective in fisheries management."

Mendall, Howard L. AN INVENTORY OF MAINE'S BREEDING EIDER DUCKS. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 95-104. 1968. WR 131: 102

[Maine Coop. Wildl. Res. Unit, Orono.] Abstract: Aerial techniques are described for inventorying the breeding population of the American eider (Somateria mollissima dresseri) on the Maine coast. This bird has doubled its numbers several times in recent decades. Problems of eider management in the face of present and expected coastal exploitation are discussed. An urgent need is pointed out for preservation of breeding habitat and for protecting nesting females from human disturbance.

Miller, Harvey, and Alex Dzubin. REGROUPING OF FAMILY MEMBERS OF THE WHITE-FRONTED GOOSE (ANSER ALBIFRONS) AFTER INDIVIDUAL RELEASE. Bird-Banding 36(3): 184-191. July 1965. WR 131: 102

[U.S. Fish & Wildl. Serv., Jamestown, N. Dak.] Members of families of white-fronted geese were mixed with other families, color-marked, banded, and released separately. Original families could and did regroup, but the banding procedures did break up an unknown percentage of family units.--From summ. Courtesy/ Paul A. Stewart.

Moses, Edward S. EXPERIMENTAL TECHNIQUES FOR CAPTURING AMERICAN EIDERS. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 89-94. 1968. WR 131: 103

[Great Meadows Natl. Wildl. Refuge, Concord, Mass.] Abstract: A combination of the newly-developed, jet cannon net trap and eider skin decoys was found to be an effective and practical technique for attracting and capturing American eiders (Somateria mollissima dresseri) on coastal beaches. Valuable data, concerning behaviorisms of loafing eiders on the beach net trap site and the feeding and loafing time table as governed by tides, were collected during the 1966-67 trapping period.

Nickell, Walter P. MALLARDS NEST IN TREES AND ON WALLS. Jack-Pine Warbler 46(1): 28-30, 2 figs. Mar. 1968. WR 131: 103

[Cranbrook Inst. Sci., Bloomfield Hills, Mich.] Renesting attempts of semi-domestic mallards have been located up to 35 feet above the ground in trees, on buildings, and on brick walls.

Nilsson, Leif. MIDVINTERRÄKNINGAR AV ÄNDER OCH ANNAN SJÖFÅGEL LÄNGS SVENSKA KUSTEN 1964-1966. [MIDWINTER CENSUSES OF DUCKS AND OTHER WATERFOWL ALONG THE SWEDISH COAST 1964-1966.] Vår Fågelvärld 26: 37-53. 1967. [From Bird-Banding 38(4), 1967. In Swedish with English summ.] WR 131: 103

Ogilvie, M. A. THE NUMBERS AND DISTRIBUTION OF THE EUROPEAN WHITE-FRONTED GOOSE IN BRITAIN. Bird Study 15(1): 2-15. Mar. 1968. WR 131: 103

[Wildfowl Trust, Slimbridge, Gloucestershire, England.] Censuses of Anser a. albifrons wintering in Britain were taken in 1956, 1966, and 1967, two in each year. Estimated maximum numbers have been calculated from available counts for each winter from 1947 to 1967. Distribution by counties is given in an appendix.

Philippona, J. GANZENPLEISTERPLAATSEN IN NEDERLAND: DE OMGEVING VAN DE GROTE BREKKEN IN HET ZUIDEN VAN FRIESLAND. [THE SURROUNDINGS OF THE GROTE BREKKEN IN THE SOUTHERN PART OF FRIESLAND, AS A HAUNT FOR GEESE.] Limosa 39 (1-3): 1-32, 2 figs. 1966. In Dutch with English summ. WR 131: 103

Raveling, Dennis Graff. SOCIOBIOLOGY AND ECOLOGY OF CANADA GEESE IN WINTER. Ph.D. thesis, Southern Ill. Univ. 263 p. 1967. [From Dissertation Abstr. 28 (10B), 1968.] WR 131: 103

Families remained intact all winter, forming subflocks with specific roost and feeding areas. Rank orders of large family > smaller family > pair > single adult > single immature were maintained by individual recognition, and by intensity and amount of threat display. Agonistic displays are identified and described.

Raveling, Dennis G. WEIGHTS OF BRANTA CANADENSIS INTERIOR DURING WINTER. J. Wildl. Mgmt. 32(2): 412-414. Apr. 1968. WR 131: 103

[Canadian Wildl. Serv., 114-A Garry Street, Winnipeg, Manitoba.] Abstract: Based on weights of Branta canadensis interior obtained from three sampling periods during winter 1964-65 at Crab Orchard National Wildlife Refuge, Illinois, the following results and conclusions emerged: adults expectedly lost weight in late winter; yearlings and immatures did not lose weight through the winter; geese at Crab Orchard were usually heavier and did not show as many nor as large weight losses as reported from other southern Illinois localities, probably because of the relationships of numbers of geese and available food; Crab Orchard geese appeared to be in excellent condition throughout the winter.

Rieffenberger, Joseph C., and Robert C. Kletzly. A NIGHT-LIGHTING TECHNIQUE FOR CENSUSING AND BANDING WOOD DUCKS ON RIVERS AND SMALLER STREAMS. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 71-77. 1968. WR 131: 103

[W. Va. Dept. Nat. Resources, Charleston.] Abstract: Wood ducks breeding in stream habitat can be censused, and significant numbers banded, by means of night-lighting. The equipment needed and an account of its development is

given. The technique of capturing wood ducks is related, along with experiences and observations. Tables show the numbers of ducks observed and captured. Numbers of broods, plus brood sizes, are included in the tables. Mileage of stream, or stream bank on large rivers, is shown, as is number of broods per mile.

Rydén, Olof, and Hans Källander. BERÄKNING AV EIDERNS (SOMATERIA MOLLISSIMA) STRÄCKHASTIGHET. [CALCULATION OF MIGRATORY FLIGHT SPEED WITH SPECIAL REFERENCE TO THE EIDER.] Vår Fågelvärld 23: 151-158. 1964. [From Bird-Banding 36(1), 1965. In Swedish with English summ.] WR 131: 104

Schmidt, Gerald D. POLYMORPHUS SWARTZI SP. N., AND OTHER ACANTHOCEPHALA OF ALASKAN DUCKS. J. Parasitol. 51(5): 809-813, 3 figs. Oct. 1965. WR 131: 104
[Colo. State Coll., Greeley.]

Schranck, Barnet W. WATERFOWL NEST-SITES AND NEST PREDATION. M.S. thesis, Univ. Mo. vi + 104 p. June 1966. WR 131: 104
Waterfowl used openings in the natural vegetation during prenesting activities and after nesting had begun for observation sites and landing spots. Nesting density was higher on sample areas provided with artificial landing spots. Artificial nesting studies indicated that cover density was related to nest success. Predator control was evaluated by determining duck production on four areas and by artificial nesting studies.

Schwartz, L. K., and Glen Smart. CONTROL OF BOTULISM IN WILD FOWL. J. Am. Vet. Med. Assoc. 143(2): 163. 15 July 1963. WR 131: 104
[Worthington, Minn.] Mallards vaccinated with 1 cc of botulinus toxoid did not develop clinical symptoms of botulism despite being placed in observation pens with infected birds. A common shelduck was the only vaccinated bird to die during the study period. A single inoculation of 1 cc of botulinus toxoid appeared sufficient to protect a medium-sized duck for several months.

Shepherd, Peter E. K. A PRELIMINARY EVALUATION OF EARTHQUAKE DAMAGE TO WATERFOWL HABITAT IN SOUTHCENTRAL ALASKA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 76-80. [1965.] WR 131: 104
[Alaska Dept. Fish & Game, Juneau.]

Sherwood, Glen A. CANADA GEESE OF THE SENEY NATIONAL WILDLIFE REFUGE. Seney Natl. Wildl. Refuge. 222 p., 16 figs. Aug. 1965. WR 131: 104
A three-year study from June 1962 to Aug. 1965 on the population and behavior patterns of the Seney flock. The author discusses factors limiting the population and methods for improving flock size. Breeding and brood rearing behavior, pair and family bonds, and yearling bird activities are described. [See WR 126: 48 for thesis based on this study.]

Skryabin, N. G. [THE EFFECT OF FLUCTUATIONS OF BAIKAL WATER LEVELS ON WATERFOWL.] Ornitologiya 8: 285-293. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 104

Stout, I. Jack. THE NATURE AND PATTERN OF NONHUNTING MORTALITY IN FLEDGED NORTH AMERICAN WATERFOWL. M.S. thesis, Va. Polytech. Inst. 329 p. 1967. WR 131: 104
A qualitative analysis of nonhunting mortality in North American ducks, geese, and swans was arranged into strata: collisional, weather, predation, pollution, disease, and miscellaneous. The pattern of nonhunting mortality with respect to the mortality factors and their regional distribution, seasonality, and differential influence upon species and sexes was emphasized. A hypothesis was formulated that mortality was a major factor in the population regulation of many waterfowl species.--From abstr.

Swedberg, Gerald E. THE KOLOA RESTORATION PROJECT. Proc. 47th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 282-291. [1967.] WR 131: 105
[Hawaii Div. Fish & Game, Honolulu.] Restoration of the Koloa or Hawaiian duck (Anas wyvilliana).

Tarchevskaya, V. A. [SOME ADAPTIVE FEATURES OF THE EYES OF DUCKS.] Ornitologiya 8: 326-332. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 105
The river ducks showed more uniformity in all optical indices. In comparison with diving ducks they have greater angle of optical aperture; greater relative diameter of cornea at base; and greater convexity of cornea. Diving ducks have greater relative area of bulbar fundus relative to basal area of cornea, and wider span of adjustment of angle of aperture, all of which is regarded as more suitable for feeding under water at low visibility.

Trainer, Charles E. LEAD POISONING OF WATERFOWL ON THE SAUVIE ISLAND GAME MANAGEMENT AREA. Proc. 45th Ann. Conf. W. Assoc. State Game & Fish Comms. p. 69-72. [1965.] WR 131: 105
[Oreg. State Game Comm., Portland.]

Wheeler, R. J. DUCK NESTING AND PRODUCTION IN THE HUMBOLDT BAY AREA. M.S. thesis, Humboldt State Coll. 58 p. 1966. WR 131: 105
A nesting study conducted during the spring and summer of 1964 and 1965 consisted of finding as many nests as possible and following them through to completion. Data collected for each nest included the species; ecological and geographical location; distance to nearest and open water; nest material; cover type, height and density; clutch size; nest fate; date of nest conclusion and any other additional pertinent data. In 1964 an estimated 1,398 ducklings were raised in the Humboldt Bay area, 902 mallards and 496 cinnamon teal. In 1965 the estimate was 1,102 ducklings, 878 mallards and 224 cinnamon teal. It was estimated that one mallard was produced for each 12 to 13 acres in 1964 and 1965, and one cinnamon teal for each 22.6 acres in 1964 and 50.1 acres in 1965.--From summ.

Willey, Charles H. THE ECOLOGICAL SIGNIFICANCE OF THE MUTE SWAN IN RHODE ISLAND. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 121-134. 1968. WR 131: 105
[R.I. Dept. Nat. Resources, Providence.] Abstract: A six-year study of the ecology of the mute swan (Cygnus olor) in Rhode Island is reported. Capture and determination of the sex and age of 25% to 50% of the total population indicates a sex ratio of 58.1% males. Age distribution consists of 26.2% cygnets, 14.2% sub-adults, and 59.6% adults. Earliest age of mating among known-age birds is 3 years. Based on earliest age of mating, the minimum percent of the population capable of breeding is estimated at 24.5%; the maximum is 54.3%. Observation of nest sites indicates breeding success of approximately 31.9%. Expansion of swan numbers and reproductive potential are presented. Causes of mortality such as predation, accidents (flying into power lines and other obstructions), vandalism, weather conditions, parasitism, disease, and starvation are discussed. Nesting behavior, habitat preference, re-use of nest sites, and social aspects of mating are examined. Food studies reveal that swans consume at least 8.4 pounds of aquatic vegetation per day. Feeding behavior studies show that vegetation is used in a variety of ways. Territorial defense is examined. An average territory of 4.4 acres in size is determined. The significance of the territorial behavior of the mute swan with relation to other waterfowl is discussed. Movements of swans along the Atlantic coastline from Massachusetts to New York are discussed. The problems associated with a sizeable feral population of mute swans are described.

Wolff, W. J. MIGRATION OF TEAL RINGED IN THE NETHERLANDS. Ardea 54: 230-270. 1966. [From Ibis 110(1), 1968.] WR 131: 106

A study based on 4,700 recoveries. August/Sept. passage birds in north Holland winter in Britain; Nov./Dec. passage birds in north Holland winter further south on the Continent. The breeding areas from which these birds are drawn are Fenno-Scandinavia and Russia (north of 60° N. and west of the Urals).

CRANES, RAILS, SHOREBIRDS

Amerson, A. Binion, Jr. ORNITHODOROS CAPENSIS (ACARINA: ARGASIDAE) INFESTING SOOTY TERN (STERNA FUSCATA) NASAL CAVITIES. J. Parasitol. 52(6): 1220-1221. Dec. 1966. WR 131: 106

[Smithsonian Inst., Washington, D.C.]

Andersson, Sune. ETT GRÄTRUTMATERIAL FRÅN VÄSTERVIK SKÄRGÅRD. [AN INVESTIGATION OF HERRING GULLS (LARUS ARGENTATUS) FROM THE VÄSTERVIK ARCHIPELAGO ON SWEDEN'S BALTIC COAST.] Vår Fågelvärld 23: 337-347. 1964. [From Bird-Banding 36(3), 1965. In Swedish with English summ.] WR 131: 106

Bengtson, Sven-Axel. REVIRFÖRHÅLLANDEN HOS VATTENRALL (RALLUS AQUATICUS) TIDIGT PÅ VÅREN. [TERRITORIALITY IN THE WATER RAIL IN EARLY SPRING.] Vår Fågelvärld 26: 6-18. 1967. [From Bird-Banding 38(4), 1967. In Swedish with English summ.] WR 131: 106

Boyd, Elizabeth M. OBSERVATIONS ON NEMATODES OF HERONS IN NORTH AMERICA INCLUDING THREE NEW SPECIES AND NEW HOST AND STATE RECORDS. J. Parasitol. 52 (3): 503-511, 27 figs. June 1966. WR 131: 106

[Mount Holyoke Coll., South Hadley, Mass.]

Condy, J. B. A TECHNIQUE FOR CAPTURING ABDIM'S STORKS SPHENORHYNCHUS ABDIMII (LICHTENSTEIN). Ostrich 36(3): 121-122. 1965. [From Bird-Banding 37 (3), 1966.] WR 131: 106

Daniel, M. J. OBSERVATIONS ON CHICK MORTALITY IN A COLONY OF BLACK-BILLED GULLS IN THE THERMAL AREA AT WHAKAREWAREWA. Notornis 10(6): 277-278, 285-286, 1 fig. + 2 pls. Sept. 1963. WR 131: 106

Data from the 1962/63 nesting season indicate only 2.4% of the probable 84 chicks hatched and left the colony. Dessication of eggs and chicks or actual contact with the surrounding hot (70-98°C) water accounts for most of the fatalities.

Drent, R. H. BREEDING BIOLOGY OF THE PIGEON GUILLEMOT, CEPPHUS COLUMBA. Ardea 53(3-4): 99-160, 29 figs. 1965. In English with Dutch summ. WR 131: 106

[Univ. Groningen, Haren (Gr.), Netherlands.] Colony structure, behavior patterns, and reproduction of this member of the Pacific Alcidae.

Drury, William H., Jr., and W. John Smith. DEFENSE OF FEEDING AREAS BY ADULT HERRING GULLS AND INTRUSION BY YOUNG. Evolution 22(1): 193-201. 28 Mar. 1968. WR 131: 106

[Mass. Audubon Soc., Lincoln.] Shoreline feeding areas are defended by adult Larus argentatus. Immediately after the breeding season some young enter areas held by adults thought to be their parents, and are fed by the adults. At other seasons, young attempt to intrude into feeding areas held by birds which are not their parents; in addition, at these seasons a group of gulls of all ages will sometimes intrude into a single individual's feeding area if they find there a choice food supply.--From summ.

Edberg, Ragnar. FISKTÄRNANS (STERNA HIRUNDO) HÄCKNING VID HJÄLMAREN. [THE BREEDING OF THE COMMON TERN AT HJÄLMAREN, CENTRAL SWEDEN.] Vår Fågelvärld 23: 97-102. 1964. [From Bird-Banding 36(1), 1965. In Swedish with English summ.] WR 131: 106

Heard, Richard W. III. PARASITES OF THE CLAPPER RAIL, RALLUS LONGIROSTRIS BODDAERT. I. THE CURRENT STATUS OF THE GENUS LEVINSENIELLA WITH THE DESCRIPTION OF LEVINSENIELLA BYRDI N. SP. (TREMATODA: MICROPHALLIDAE). Proc. Helminthol. Soc. Washington 35(1): 62-67, 7 figs. Jan. 1968. WR 131: 107
[Univ. Ga., Athens.]

Hildén, Olavi. ZUR BRUTBIOLOGIE DES TEMMINCKSTRANDLÄUFERS, CALIDRIS TEMMINCKII (LEISL.). [BREEDING BIOLOGY OF TEMMINCK'S STINT.] Ornis Fennica 42(1): 1-5. 1965. [From Bird-Banding 37(1), 1966. In German with English summ.] WR 131: 107

Hopkins, Milton N., Jr., and C. William Dopson, Jr. AN AERIAL SEARCH FOR ROOKERIES IN SOUTH CENTRAL GEORGIA. Oriole 32(4): 39-45, 1 [fig.]. Dec. 1967. WR 131: 107
[202 W. Roanoke Dr., Fitzgerald, Ga.] The authors searched all or portions of nine counties in south central Georgia during the summer of 1967 from a light airplane. Four rookeries were located in two days of flying, and were later visited and censused on foot. The little blue heron, great blue heron, green heron, cattle egret, common egret, white ibis and anhinga were found nesting.--From summ.

Jouanin, Christian, and Frank B. Gill. RECHERCHE DU PETREL DE BARAU, PTERODROMA BARAUI. [RESEARCH ON THE BARAU PETREL PTERODROMA BARAUI.] Oiseau & Revue Francaise Ornithol. 37(1-2): 1-19, 2 figs. + 1 pl. 1967. In French with English summ. WR 131: 107
History; distribution in the ocean, coastal and land habitats; vocalization; and nesting of Pterodroma baraui on Reunion Island.

Kadlec, John A., and William H. Drury. AERIAL ESTIMATION OF THE SIZE OF GULL BREEDING COLONIES. J. Wildl. Mgmt. 32(2): 287-293. Apr. 1968. WR 131: 107
[Patuxent Wildl. Res. Center, Mass. Audubon Soc., Lincoln.] Abstract: Counts on photographs and visual estimates of the numbers of territorial gulls are usually reliable indicators of the number of gull nests, but single visual estimates are not adequate to measure the number of nests in individual colonies. To properly interpret gull counts requires that several islands with known numbers of nests be photographed to establish the ratio of gulls to nests applicable for a given local census. Visual estimates are adequate to determine total breeding gull numbers by regions. Neither visual estimates nor photography will reliably detect annual changes of less than about 25%.

Kale, Herbert W. II, George W. Sciple, and Ivan R. Tomkins. THE ROYAL TERN COLONY OF LITTLE EGG ISLAND, GEORGIA. Bird-Banding 36(1): 21-27, 2 figs. Jan. 1965. WR 131: 107
Courtesy/ Paul A. Stewart.

Koeman, J. H., A. A. G. Oskamp, J. Veen, E. Brouwer, J. Rooth, P. Zwart, E. v. d. Broek, and H. van Genderen. INSECTICIDES AS A FACTOR IN THE MORTALITY OF THE SANDWICH TERN (STERNA SANDVICENSIS). A PRELIMINARY COMMUNICATION. Meded. Rijksfaculteit Landbouwwetenschappen Gent 32(3/4): 841-854, 4 figs. 1967. In English with Dutch, French, and German summ. WR 131: 107
[Univ. Utrecht, Netherlands.] Mortality due to poisoning from the combined action of dieldrin, telodrin, and endrin occurred in sandwich terns in the breeding colony at Griend in 1964 and 1965. Poisoning was mainly observed in young birds and the recovery data of bird-migration indicate a general increased mortality in the young. "We tentatively conclude that the population decline in the breeding colony is due to the contamination of the coastal environment with the chlorinated hydrocarbon insecticides mentioned."--From concl.

Ludwig, James Pinson. BIOLOGY AND STRUCTURE OF THE CASPIAN TERN (HYDROPROGNE CASPIA) POPULATION OF THE GREAT LAKES FROM 1896-1964. Bird-Banding 36 (4): 217-233, [6 figs.]. Oct. 1965. WR 131: 108

[St. Cloud State Coll., St. Cloud, Minn.] Nesting and banding data, movements, age-class distribution and causes of mortality, food habits, and endoparasites of the Caspian tern.--Courtesy/ Paul A. Stewart.

Ludwig, James Pinson. BAND LOSS--ITS EFFECT ON BANDING DATA AND APPARENT SURVIVORSHIP IN THE RING-BILLED GULL POPULATION OF THE GREAT LAKES. Bird-Banding 38(4): 309-323, [6 figs.]. Oct. 1967. WR 131: 108

[St. Cloud State Coll., St. Cloud, Minn.] Data on the expected rate of wear of bands on gulls were used to correct the expected survival rate of a ring-billed gull population, where a fledgling rate of 0.523 chicks per pair of adults maintains a stable population size. Uncorrected banding data required 1.78 fledglings per pair per year to maintain stable population size; with the corrected data, even if no gulls breed until their third year, and none contribute young after their 25th year, only 0.63 fledglings per pair per year will keep the population stable.--From summ. Courtesy/ Paul A. Stewart.

Mascher, Jan W. WEIGHT VARIATIONS IN RESTING DUNLINS (CALIDRIS A. ALPINA) ON AUTUMN MIGRATION IN SWEDEN. Bird-Banding 37(1): 1-34, 10 figs. Jan. 1966. WR 131: 108

[Götgatan, Uppsala, Sweden.] Autumn migration of the dunlin extends from early July until mid-Oct., with chiefly adults migrating before early Aug. and juveniles during Sept. and Oct. Movement of adults is more hurried than movement of juveniles. Adults weighed slightly more on arrival than juveniles but departed in a more lean condition. The maximum fat deposition in dunlins resting at Ledskär was 40% of the body weight. Daily weight variation was never more than 10-11% of the total body weight. Dunlins arriving with unexhausted fat stores continued to lose weight for 2 days after arrival but continually gained weight later. Birds arriving in a lean condition started to gain weight immediately upon arrival. Larger fat stores indicated a greater readiness to depart, but a certain fat level was not a requirement for migration.--Courtesy/ Paul A. Stewart.

Mawson, Patricia M. NEMATODES FROM AUSTRALIAN WADERS. Parasitology 58(2): 277-305, 76 figs. May 1968. WR 131: 108

[Univ. Adelaide, Adelaide, Australia.] Records are given of helminth infection found by the dissection of 122 waders belonging to 19 spp., some migratory and some resident in Australia.--From summ.

Regnell, Sten. KORT BIDRAG TILL KÄNNEDOMEN OM STÖRRE SANDPIPARENS (CHARADRIUS HIATICULA) HÄCKNINGSBIOLOGI. [A BRIEF CONTRIBUTION TO THE BREEDING BIOLOGY OF THE RINGED PLOVER.] Vår Fågelvärld 24: 310-313. 1965. [From Bird-Banding 37(3), 1966. In Swedish with English summ.] WR 131: 108

Ridpath, M. G. THE TASMANIAN NATIVE HEN. Australian Nat. Hist. 14(11): 346-350, illus. 15 Sept. 1964. WR 131: 108

[CSIRO, Hobart, Tasmania.] Feeding habits, territorial behavior, and breeding behavior of Tribonyx mortierii.

Ryabov, V. F., and N. I. Mosalova. [THE DIETARY FEATURES OF THE CURLEW AND THE BLACK-TAILED GODWIT IN NORTHERN KAZAKHSTAN.] Ornitologiya 8: [210]-220. [1967.] [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 108

"Numenius arquata and Limosa limosa."

Ryder, Ronald A. DISTRIBUTION, MIGRATION AND MORTALITY OF THE WHITE-FACED IBIS (PLEGADIS CHIHI) IN NORTH AMERICA. Bird-Banding 38(4): 257-277, 2 figs. Oct. 1967. WR 131: 108

[Colo. State Univ., Fort Collins.] Plegadis chihi now nest in isolated colonies from east-central Oreg. to Kans., and southward at least to the Texas and La. coasts. Ibises leave the Utah marshes in late Sept. and early Oct. and migrate to central Mexico (92% of 112 recoveries).--From summ. Courtesy/ Paul A. Stewart.

Schmidt, Gerald D. CORYNOSOMA BIPAPILLUM SP. N. FROM BONAPARTE'S GULL LARUS PHILADELPHIA IN ALASKA, WITH A NOTE ON C. CONSTRICTUM VAN CLEAVE, 1918. J. Parasitol. 51(5): 814-816, 2 figs. Oct. 1965. WR 131: 109
[Colo. State Coll., Greeley.]

Schreiber, Ralph W. SEASONAL POPULATION FLUCTUATIONS OF HERRING GULLS IN CENTRAL MAINE. Bird-Banding 39(2): 81-106, 9 figs. Apr. 1968. WR 131: 109
[U.S. Natl. Museum, Washington, D.C.] The following items are considered: total number of herring gulls (Larus argentatus) present in the study area, numbers and percentages in different age classes, daily fluctuations in numbers present, results of banding and color-marking, and breeding concentrations.--Courtesy/ Paul A. Stewart.

Skead, C. J. A STUDY OF THE CATTLE EGRET, ARDEOLA IBIS, LINNAEUS. Ostrich Suppl. no. 6. p. 109-139. 1966. WR 131: 109
[Univ. Cape Town, Cape Town, South Africa.] Seasonal plumages, roosting habits, off-season behavior, courtship behavior, and breeding cycle of the cattle egret are described.

Soikkeli, M. THE DISTRIBUTION OF THE SOUTHERN DUNLIN CALIDRIS ALPINA SCHINZII IN FINLAND. Ornis Fennica 41: 13-20. 1964. [From Ibis 110(2), 1968.] WR 131: 109

Southern, William E. DISPERSAL AND MIGRATION OF RING-BILLED GULLS FROM A MICHIGAN POPULATION. Jack-Pine Warbler 45(4): 102-111, 3 figs. Dec. 1967. WR 131: 109
[Northern Ill. Univ., DeKalb.] Band recoveries and trap-retrap data were used to determine the seasonal patterns of dispersal, migration, and inhabitation for the various age-classes of ring-billed gulls from the Rogers City, Mich., colony.

Southern, William E. DISPERSAL PATTERNS OF SUBADULT HERRING GULLS FROM ROGERS CITY, MICHIGAN. Jack-Pine Warbler 46(1): 2-6, 1 fig. Mar. 1968. WR 131: 109
[Northern Ill. Univ., DeKalb.] Seasonal dispersal patterns and ranges for 84 juvenile, 15 one-year-old, and 5 two-year-old Larus argentatus are discussed on the basis of 104 recoveries.--From summ.

Southern, William Edward. THE ROLE OF ENVIRONMENTAL FACTORS IN RING-BILLED AND HERRING GULL ORIENTATION. Ph.D. thesis, Cornell Univ. 292 p. 1968. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 109
"There was no evidence that gulls used solar or stellar clues. Gulls released under wind conditions showed directional preferences since flight parameters were more suitable. A correlation existed between magnetic 'storm' activity and the number of southeast headings by juvenile ring-bills.... Innate response patterns were modified by experience and adults performed landmark orientation."

Udvardy, Miklos D. F. ZOOGEOGRAPHICAL STUDY OF THE PACIFIC ALCIDAE. Proc. 10th Pacific Sci. Congr. (Honolulu, 1961). p. 86-111, 20 figs. [1961.] WR 131: 109
"The distribution of alcids and seals in the northern hemisphere and the North Pacific distribution of alcids and endemic plants show striking agreement. The first is an indication that the ecological distribution of all members of a major biotic community is governed by the same complex of factors."--From concl.

Vuolanto, Seppo. KARIKUKON (ARENARIA INTERPRES) PESIMÄBIOLOGIASTA RAIPPALUODON NORRSKÄRILLÄ. [ON THE BREEDING BIOLOGY OF THE TURNSTONE (ARENARIA INTERPRES) AT NORRSKÄR, GULF OF BOTHNIA.] Ornis Fennica 45(1): 19-24, 1 fig. 1968. In Finnish with English summ. WR 131: 109
[Huovintie 1 B 29, Helsinki, Finland.]

Weaver, David Kerr. THE HERRING GULL, WITH EMPHASIS ON MORTALITY OF THE EGGS AND YOUNG. M.S. thesis, Univ. Mich. iv + 50 p., 7 figs. Apr. 1967. WR 131: 110

Data collected during four years from gull breeding islands on the coasts of Maine and Massachusetts indicate that great black-backed gulls nesting on the same islands with herring gulls do not affect the productivity of the herring gulls on those same islands. Futile attempts were made to determine whether or not great black-backed gulls prey on the eggs and young of herring gulls on islands other than their own. It was evident to me that behind all of the direct causes of mortality, save one or two, a lack of parental care was indirectly responsible and may be ultimately accountable for the breeding success of parts of the population.--From summ.

Zhelnin, V. A. [THE FALL MIGRATION OF CRANES AS AN INDICATOR OF TIME FOR WINTER SOWING IN ESTONIA.] Ornitologiya 7: 341-345. 1965. [From Bird-Banding 37(3), 1966. In Russian.] WR 131: 110

HAWKS & OWLS

Bergmann, Hans-Heiner, and Maria Ganso. ZUR BIOLOGIE DES SPERLINGSKAUZES (GLAUCIDIUM PASSERINUM (L.)). [ON THE BIOLOGY OF THE PYGMY OWL.] J. Ornithol. 106(3): 255-284. 1965. [From Bird-Banding 37(2), 1966. In German with English summ.] WR 131: 110

Bernis, F. EL BUITRE NEGRO AEGYPIUS MONACHUS EN IBERIA. [THE BLACK VULTURE (AEGYPIUS MONACHUS) ON THE IBERIAN PENINSULA.] Ardeola 12: 45-99. 1966. [From Ibis 110(2), 1968. In Spanish.] WR 131: 110

Brown, L. H. OBSERVATIONS ON VERREAUX'S EAGLE OWL BUBO LACTEUS (TEMMINCK) IN KENYA. J. E. Africa Nat. Hist. Soc. & Natl. Museum 25: 101-107. 1965. [From Ibis 110(2), 1968.] WR 131: 110

"Chiefly behavior."

Dubois, Georges, and Robert L. Rausch. STUDIES ON THE HELMINTH FAUNA OF ALASKA. XLIII. STRIGEA MACROPHARYNX SP. N., A TREMATODE PARASITE OF FALCO RUSTICOLUS L. J. Parasitol. 51(5): 770-772, 3 figs. Oct. 1965. WR 131: 110

[Corcelles (Neuchâtel), Switzerland.]

Fitzgerald, B. M. PREY OF A FAMILY OF NEW ZEALAND FALCONS. Notornis 12(3): 181-184, illus. Sept. 1965. WR 131: 110

[DSIR, Lower Hutt, New Zealand.] "Alauda arvensis, Turdus ericetorum, T. merula, Chloris chloris, Carduelis carduelis, Emberiza citrinella, Passer domesticus, and Sturnis vulgaris."

Fredga, Karl. EN UNDERSÖKNING AV PÄRLUGGLANS (AEGOLIUS FUNEREUS) BYTESVAL I MELLANSVERIGE. [AN INVESTIGATION INTO THE PREY PREFERENCES OF THE BOREAL (TENGMALM'S) OWL IN CENTRAL SWEDEN.] Vår Fågelvärld 23: 103-118. 1964. [From Bird-Banding 36(1), 1965. In Swedish with English summ.] WR 131: 110

Galushin, V. M. DATA ON THE NESTING OF THE EUROPEAN SHORT-TOED EAGLE IN THE RYAZAN REGION. Published for the National Science Foundation and the U.S. Department of the Interior, Washington, D.C., by the Israel Program for Scientific Translations (Jerusalem). OTS 61-31051. 5 p., 1 fig. 1962. Russian original from Ornitologiya 1959(2): 153-156. 1959. [Translation available from Office of Technical Services, U.S. Dept. Commerce, Washington, D.C. Price 50¢.] WR 131: 110

Observations from the Oka Natural Reserve in central European Russia, on the behavior and diet of young and adult Circaëtus f. ferox.

Hildén, Olavi, and Pertti Kalinainen. UEBER VORKOMMEN UND BIOLOGIE DER ROHRWEIHE, CIRCUS AERUGINOSUS (L.), IN FINNLAND. [ON THE OCCURRENCE AND BIOLOGY OF THE MARSH HARRIER IN FINLAND.] Ornis Fennica 43(3-4): 85-124. 1966. [From Bird-Banding 38(3), 1967. In German.] WR 131: 111

Höglund, Nils H. ÜBER DIE ERNÄHRUNG DES UHUS BUBO BUBO LIN. IN SCHWEDEN WÄHREND DER BRUTZEIT. [ON THE FEEDING HABITS OF THE EAGLE OWL (BUBO BUBO) IN SWEDEN DURING BREEDING.] Viltrevy 4(2): 43-80, 6 figs. 1966. In German with Swedish summ. WR 131: 111

Krivitskii, I. A. [ON THE BIOLOGY OF THE KAZAKHSTAN PIGEON HAWK.] Ornitologiya 8: 362-364. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 111
"Falco columbarius pallidus."

Kulczycki, Antoni. [STUDY ON THE MAKE UP OF THE DIET OF OWLS FROM THE NISKI BESKID MTS.] Acta Zool. Cracoviensia 9(9): 531-559. 1964. [From Bird-Banding 37(3), 1966. In Polish with English and Russian summ.] WR 131: 111

Lenz, Michael. ZUR VERBREITUNG DES SPERLINGSKAUZES (GLAUCIDIUM PASSERINUM) IM RACHELGEBIET (BAYERISCHER WALD). [ON THE DISTRIBUTION OF THE PIGMY OWL (GLAUCIDIUM PASSERINUM) IN THE RACHEL REGION (BAVARIAN FOREST).] Ornithol. Mitteil. 19(10): 213-216, 1 fig. Oct. 1967. In German. WR 131: 111
[16 Ottokarstrasse, Berlin, Germany.]

Ligas, Frank J. STUDIES ON WINTERING BALD EAGLES IN THE MISSISSIPPI AND MISSOURI VALLEYS 1963-1967. Natl. Audubon Soc., Res. Dept. 38 p., 7 figs. Apr. 1968. WR 131: 111
Various capture and marking techniques were tried and developed. Some data on bald eagle weights and measurements are presented. Welded wire snare proved to be the most effective trapping method and vinyl upholstry paint proved to be the most satisfactory material for marking feathers.

Lloyd, Gary D., and Cornelius B. Philip. THE "WINGLESS" FLY, CARNUS HEMAPTERUS NITSCH (MILICHIIDAE), ON HAWK FLEDGLINGS IN NORTHERN UTAH. J. Parasitol. 52(2): 414. Apr. 1966. WR 131: 111
[Philip: Rocky Mountain Lab., Hamilton, Mont.]

McLaughlin, Frank W. STATUS OF THE BALD EAGLE IN NEW JERSEY. N.J. Nature News 24(2): 66-75, illus. June 1964. WR 131: 111
[N.J. Audubon Soc., Franklin Lakes.] Nesting records of the bald eagle in N.J. since 1808 show a decrease in the number of successful nests to 1963. Three unhatched eggs were analyzed; 1 egg was infertile, 2 contained embryos with residues of 11.4 and 36.9 ppm of DDT.

Mebs, Th. ZUR BIOLOGIE UND POPULATIONSDYNAMIK DES MÄUSEBUSSARDS (BUTEO BUTEO). [THE BIOLOGY AND POPULATION DYNAMICS OF THE COMMON BUZZARD (BUTEO BUTEO).] J. Ornithol. 105(3): 247-306. 1964. [From Bird-Banding 36(1), 1965. In German with English summ.] WR 131: 111

Miller, Grover C., and Reinard Harkema. STUDIES ON HELMINTHS OF NORTH CAROLINA VERTEBRATES. IV. PARASTRIGEA TULIPOIDES SP. N., A TREMATODE (STRIGEIDA: STRIGEIDAE) FROM THE RED-SHOULDERED HAWK. J. Parasitol. 51(1): 21-23, 5 figs. Feb. 1965. WR 131: 111
[Univ. N.C., Raleigh.]

Nauman, Lyle Edward. SPATIAL DISTRIBUTION IN A TURKEY VULTURE ROOST. M.S. thesis, Ohio State Univ. 65 p. 1965. WR 131: 111
In a Franklin County, Ohio, roost of the eastern turkey vulture Cathartes aura septentrionalis, perch sites were studied for individual distances, vertical distribution, and frequency of use during the spring and summer of 1964.--Courtesy/ T. J. Peterle.

Nord, Ingemar. KRAFTIGT HÖSTSTRÄCK AV ORMVRÅK (BUTEO BUTEO) VID SÖRMLAND-SKUSTEN. [STRONG FALL MOVEMENT OF BUZZARDS OBSERVED ALONG THE COAST OF EAST CENTRAL SWEDEN.] Vår Fågelvärld 23: 136-142. 1964. [From Bird-Banding 36(1), 1965. In Swedish with English summ.] WR 131: 112

Postupalsky, Sergej. MICHIGAN BALD EAGLE AND OSPREY SURVEY. Jack-Pine Warbler 46(1): 31-32. Mar. 1968. WR 131: 112
[13 Mile Rd., Royal Oak, Mich.] Of 92 occupied bald eagle nests, 35 were productive, and 51 eaglets were raised (0.55 young per nesting pair). Sixty-four nesting pairs of osprey were located; of the 62 nests surveyed, 17 were productive, and 30 young were raised, or 0.48 per nesting pair.

Rosén, Leif. ROVFÅGELSTRÄCKET VID FALSTERBO. [THE MIGRATION OF RAPTORS AT FALSTERBO.] Vår Fågelvärld 25: 315-326. 1966. [From Bird-Banding 38(3), 1967. In Swedish with English summ.] WR 131: 112

Schnell, Gary D. POPULATION FLUCTUATIONS, SPATIAL DISTRIBUTION, AND FOOD HABITS OF ROUGH-LEGGED HAWKS IN ILLINOIS. Kans. Ornithol. Soc. Bull. 18(4): 21-28, 3 figs. Dec. 1967. WR 131: 112
[Univ. Kans., Lawrence.] Two-year study in Afton Township.

Southern, William E. FURTHER COMMENTS ON SUBADULT BALD EAGLE PLUMAGES. Jack-Pine Warbler 45(3): 70-80, 7 figs. Sept. 1967. WR 131: 112
[Northern Ill. Univ., DeKalb.] Description of six juvenile plumages representative of age classes and two transitional plumages.

Stabler, Robert M., and Portia A. Holt. HEMATOZOA FROM COLORADO BIRDS. II. FALCONIFORMES AND STRIGIFORMES. J. Parasitol. 51(6): 927-928. Dec. 1965. WR 131: 112
[Colo. Coll., Colorado Springs.]

Stager, Kenneth E. THE ROLE OF OLFACTION IN FOOD LOCATION IN THE TURKEY VULTURE (CATHARTES AURA). Los Angeles County Museum Contrib. Sci. no. 81. 63 p. 1964. [From Bird-Banding 36(1), 1965.] WR 131: 112

Suetens, W., and P. Van Groenendael. ECOLOGÍE Y CONDUCTA REPRODUCTORA DEL BUITRE NEGRO AEGYPIUS MONACHUS. [ECOLOGY AND REPRODUCTIVE BEHAVIOR OF THE BLACK VULTURE, AEGYPIUS MONACHUS.] Ardeola 12: 19-44. 1966. [From Ibis 110 (2), 1968. In Spanish.] WR 131: 112

Sweet, G., and S. M. Taylor. STUDIES ON THE BIRDS OF PREY OF THE BRISTOL DISTRICT. Proc. Bristol Nat. Soc. 31: 291-296. 1967. [From Ibis 110(1), 1968.] WR 131: 112

Todd, Kenneth S., Jr. APLOPARAKSIS PICAE SP. N. (CESTODA, HYMENOLEPIDIDAE) FROM THE BLACK-BILLED MAGPIE, PICA PICA HUDSONIA (SABINE, 1823). J. Parasitol. 53(2): 350-351, 3 figs. Apr. 1967. WR 131: 112
[Utah State Univ., Logan.]

Valverde, J. A. SOBRE BUITRES NEGROS EN ANDALUCÍA. [ON THE BLACK VULTURE IN ANDALUSIA.] Ardeola 12: 101-105. 1966. [From Ibis 110(2), 1968. In Spanish.] WR 131: 112
A review of information about Aegypius monachus with special reference to the neighborhood of the Coto Doñana. Some comparisons with the ecology and behavior of the griffon vulture.

Warncke, K. ZUR BRUTBIOLOGIE DES WÜRGFALKEN FALCO CHERRUG. [ON THE BREEDING BIOLOGY OF THE SAKER FALCON FALCO CHERRUG.] Vogelwelt 88: 1-7. 1967. [From Ibis 110(1), 1968. In German.] WR 131: 112

Weller, Milton W. BURSA REGRESSION, GONAD CYCLE AND MOLT OF THE GREAT-HORNED OWL. Bird-Banding 36(2): 102-112, 7 figs. Apr. 1965. WR 131: 113
[Iowa State Univ., Ames.] External measurements may be used to determine sex in Bubo virginianus. Age may be determined by measuring the bursa of Fabricius. Chronology of the molt was suggested by the molting pattern of two captive yearlings.

Wolhuter, Bruce R. APPARENT HOMING IN THE RED-TAILED HAWK. Bird-Banding 39(1): 61. Jan. 1968. WR 131: 113
[Univ. Kans., Lawrence.] After five days in captivity during February, the bird escaped and returned to the place where it was captured 4.25 miles from where it had been held captive.--Courtesy/ Paul A. Stewart.

Zumpt, F. WHERE THE VULTURES BREED. Flora & Fauna no. 18. p. 48-55, 8 figs. 1967. WR 131: 113
[South African Inst. Med. Res., Johannesburg.] Recoveries of Cape vultures (Gyps coprotheres) banded as nestlings indicate that they may range up to 500 miles from their birthplace. Most of the article is concerned with ectoparasites of this species.

BLACKBIRDS, STARLINGS, CROWS

Atkinson, I. A. E., and D. J. Campbell. HABITAT FACTORS AFFECTING SADDLEBACKS ON HEN ISLAND. Proc. New Zealand Ecol. Soc. 13: 35-40, 3 figs. 1966. WR 131: 113
[DSIR, Lower Hutt, New Zealand.] The North Island saddleback [or wattled crow] (Philesturnus carunculatus rufusater) feeds mainly on nonflying invertebrates, succulent fruits, nectar, and buds. Availability of and competition for food, as well as the nature of the litter and the availability of water, affect the saddleback's chances for survival.

Ballard, Neil B., and O. W. Olsen. HELMINTHS OF THE STARLING, STURNUS VULGARIS VULGARIS L., FROM NORTHEASTERN COLORADO. J. Parasitol. 52(2): 372. Apr. 1966. WR 131: 113
[Colo. State Univ., Fort Collins.]

Bordner, Dorothy L., Merrill Wood, and David E. Davis. GEOGRAPHICAL DISTRIBUTION OF STARLINGS BANDED AT STATE COLLEGE, PENNSYLVANIA. Bird-Banding 39(2): 117-122, 3 figs. Apr. 1968. WR 131: 113
[Pa. State Univ., University Park.] Of 8,058 starlings (Sturnus vulgaris) banded in central Pennsylvania, 380 were recaptured. Recaptures indicated that some individuals are permanent residents and others migratory, moving in a northeast-southwest direction.--From summ. Courtesy/ Paul A. Stewart.

Brenner, Fred J. SEASONAL CORRELATION OF RESERVE ENERGY OF THE RED-WINGED BLACKBIRD. Bird-Banding 38(3): 195-211, 6 figs. July 1967. WR 131: 113
[Thiel Coll., Greenville, Pa.] The body weight of male Agelaius phoeniceus decreased from a mean of 67.9 g in Mar. to a mean of 62.0 g in July. The mean weight of females was 42.1 g in May and decreased to 38.9 g in July. Regressions for males and females were not significantly different. Fat deposition in the spring is utilized largely for reproduction or for survival during inclement weather rather than for migration.--From summ. Courtesy/ Paul A. Stewart.

Brenner, Fred J. ENERGY FLOW IN TWO BREEDING POPULATIONS OF REDWINGED BLACKBIRDS. Am. Midland Nat. 79(2): 289-310, 3 figs. Apr. 1968. WR 131: 113
[Thiel Coll., Greenville, Pa.] The energy requirements of nestlings and adults in two breeding populations of redwinged blackbirds (Agelaius phoeniceus) were studied from 1961 through 1964. The energy at several trophic levels was determined and a study undertaken of environmental factors that may influence

energy flow throughout the ecosystem. Two marshes in Center Co., Pennsylvania, were chosen as study areas. The size of the population on both marshes appears to correspond to the available energy supply. A correlation was found between the insect biomass and the size of the breeding population. The amount of energy available on the marshes as insects, in conjunction with the type of vegetation preferred for nesting, may be a factor in regulating the size of the breeding population. The redwinged blackbird populations on both marshes appeared to correlate their breeding activity with a period when an abundant energy supply (insects) was available for feeding the young. The environmental temperature is probably a common stimulus for the development of insects and for the nesting activity of birds.--From abstr.

Brown, L. H. REDWINGED STARLINGS OF KENYA. J. E. Africa Nat. Hist. Soc. & Natl. Museum 25: 41-52. 1965. [From Ibis 110(2), 1968.] WR 131: 114
"Onychognathus morio and O. tenuirostris."

D'Alessio, D. J., R. H. Heeren, S. L. Hendricks, P. Ogilvie, and M. L. Furcolow. A STARLING ROOST AS THE SOURCE OF URBAN EPIDEMIC HISTOPLASMOSIS IN AN AREA OF LOW INCIDENCE. Am. Rev. Respiratory Diseases 92(5): 725-731, 2 figs. Nov. 1965. In English with Spanish and French summ. WR 131: 114
An epidemic of histoplasmosis occurred during Aug. and Sept. 1962, in Mason City, Iowa, in association with the clearing away of a starling roost. The first cases were among the men working at the site, several of whom had severe illnesses. Data obtained indicated that a large number of people throughout the city were infected from this single source within a limited period of time.

Dennis, John V. REACTION OF THE STARLING (STURNUS VULGARIS) TO HARD, FATTY FOODS. Bird-Banding 37(1): 51-52. Jan. 1966. WR 131: 114
[Box 389, Leesburg, Va.] Hard fatty foods were resistant to starling attack during cold weather. The two most resistant recipes were two parts melted suet to three parts white cornmeal, and two parts bacon drippings to two parts white cornmeal.--Courtesy/ Paul A. Stewart.

Eigelis, Yu. V., and B. V. Nekrasov. [MORPHOLOGICAL PECULIARITIES OF THE BUCCAL CAVITY OF CORVIDAE AS RELATED TO FOOD TRANSPORTATION.] Zool. Zhur. 46(2): 258-263. 1967. [From Bird-Banding 38(4), 1967. In Russian with English summ.] WR 131: 114

Guarino, Joseph L. EVALUATION OF A COLORED LEG TAG FOR STARLINGS AND BLACKBIRDS. Bird-Banding 39(1): 6-13, 1 fig. Jan. 1968. WR 131: 114
[U.S. Fish & Wildl. Serv., Denver, Colo.] Nylon-impregnated, polyvinyl chloride plastic leg tags were retained up to 4 months by 98.1% of 860 birds. Recovery rates of tagged birds were 200% higher than those marked with standard leg bands.--Courtesy/ Paul A. Stewart.

Havlin, Jiří, and Čestmir Folk. [FOOD AND ECONOMIC IMPORTANCE OF THE STARLING, STURNUS VULGARIS L.] Zool. Listy 14(3): 193-208. 1965. [From Bird-Banding 37(2), 1966. In Czech with English summ.] WR 131: 114

Holcomb, Larry C., and Gilbert Twiest. ECOLOGICAL FACTORS AFFECTING NEST BUILDING IN RED-WINGED BLACKBIRDS. Bird-Banding 39(1): 14-22. Jan. 1968. WR 131: 114
[Creighton Univ., Omaha, Nebr.] The mean time required to build a nest was three days. There was a delay of one to five days between nest completion and egg laying. Nesting success was 17.2% for nests less than 24 inches above water and 34.8% for nests 48 or more inches above water. Measurements of nests are given.--From summ. Courtesy/ Paul A. Stewart.

Janovy, John, Jr. EPIDEMIOLOGY OF PLASMODIUM HEXAMERIUM HUFF, 1935, IN MEADOWLARKS AND STARLINGS OF THE CHEYENNE BOTTOMS, BARTON COUNTY, KANSAS. J. Parasitol. 52(3): 573-578, 1 fig. June 1966. WR 131: 115
[Rutgers Univ., New Brunswick, N.J.]

Lakhanov, Zh. L. [ON THE BIOLOGY OF THE DESERT RAVEN IN THE SOUTHWESTERN KYZYLKUMS.] Ornitologiya 8: 364-366. 1967. [From Bird-Banding 39(2), 1968. In Russian.] WR 131: 115
"Corvus ruficollis."

Meanley, Brooke, and John S. Webb. NATIONWIDE POPULATION ESTIMATES OF BLACKBIRDS AND STARLINGS. Atlantic Nat. 20(4): 189-191, [3 figs.]. Oct.-Dec. 1965. WR 131: 115
[Patuxent Wildl. Res. Center, Laurel, Md.] According to a five-year nationwide winter roost survey there are an estimated half billion blackbirds and starlings in the continental U.S. Three-fourths of the population is found in the East.

Power, Dennis M. GEOGRAPHIC VARIATION OF RED-WINGED BLACKBIRDS IN CENTRAL NORTH AMERICA. Ph.D. thesis, Univ. Kans. 283 p. 1967. [From Dissertation Abstr. 28(11B), 1968.] WR 131: 115
The results suggest that the current recognition of 3 sspp. of Agelaius phoeniceus is totally arbitrary and biologically unsound.

Schafer, E. W., R. I. Starr, D. J. Cunningham, and T. J. Decino. SUBSTITUTED PHENYL N-METHYLCARBAMATES AS TEMPORARY IMMOBILIZING AGENTS FOR BIRDS. J. Agr. & Food Chem. 15: 287-289. Mar.-Apr. 1967. WR 131: 115
[Denver Federal Center, Denver, Colo.] The temporary immobilization activity and acute oral toxicity of 22 substituted phenyl N-methylcarbamates were determined on red-winged blackbirds (Agelaius phoeniceus) and starlings (Sturnus vulgaris). Twelve compounds immobilized redwings and 8 immobilized starlings at doses below 10 mg/kg.--From abstr.

Stamm, Anne L. SOME COMMENTS ON BANDED STARLINGS. Ky. Warbler 41(2): 23-25. May 1965. WR 131: 115
[9101 Spokane Way, Louisville, Ky.] A total of 1,116 starlings were banded during 1949-1964. A limited number of returns and recoveries indicate that starlings are migratory but that many are sedentary.

OTHER BIRDS

Berger, Andrew J. TRAILL'S FLYCATCHER IN WASHTENAW COUNTY, MICHIGAN. Jack-Pine Warbler 45(4): 117-123. Dec. 1967. WR 131: 115
[Univ. Hawaii, Honolulu.] Notes on habitat and nest sites, nesting dates, eggs and incubation, and nesting success of 325 Traill's flycatcher nests studied during 1948-1963.

Gill, Douglas E., and Wesley E. Lanyon. ESTABLISHMENT, GROWTH, AND BEHAVIOR OF AN EXTRALIMITAL POPULATION OF HOUSE FINCHES AT HUNTINGTON, NEW YORK. Bird-Banding 36(1): 1-14, 4 figs. Jan. 1965. WR 131: 115
Courtesy/ Paul A. Stewart.

Holtmeier, F. K. DIE ÖKOLOGISCHE FUNKTION DES TANNENHÄHERS IM ZIRBEN-LÄRCHENWALD UND AN DER WALDGRENZE DES OBERENGADINS. [THE ECOLOGICAL FUNCTION OF NUTCRACKERS IN THE ZIRBEN LARCHWOODS, AND AT TIMBERLINE ON THE OBERENGADINS.] J. Ornithol. 107(3-4): 337-345. 1966. [From Bird-Banding 38(4), 1967. In German.] WR 131: 115

Moisan, Gaston, and Jean-M. Poulin. THE GANNETS (SULA BASSANA) OF BONAVENTURE ISLAND, QUEBEC. Trans. NE Sect. Wildl. Soc., 25th NE Fish & Wildl. Conf. 14-17 Jan. 1968. p. 135-142. With French abstr. 1968. WR 131: 116

[Université Laval, Québec, Canada.] Abstract: The gannet colony of Bonaventure Island, in the Gaspé Peninsula, Quebec, was estimated at 50,100 The breeding biology was studied in 1966 and 1967 by direct observations of 1112 nests or nest sites from mid-April to mid-October. The incubation period was 43.9 days and fledging period 90 days. Laying, hatching and fledging were highly synchronized, but about 10 days later than at Bass Rock, in Scotland. One hundred pairs occupying a nest or a "site" produced 26 fledged young. This breeding success was less than half that recorded at Bass Rock. Climatic factors, disturbance, or growth rate of the colony may be responsible.

Oatley, T. B. OBSERVATIONS BY W. M. AUSTEN ON THE BREEDING BIOLOGY OF THE WHITE-EARED BARBET, BUCCANODON LEUCOTIS (SUNDEVALL). Lammergeyer 8: 7-14, 1 fig., 1 pl. Mar. 1968. WR 131: 116

[Natal Parks, Game & Fish Preservation Board, P.O. Box 662, Pietermaritzburg, Natal, S. Africa.] Excavation of the nest chamber was completed within 6 weeks; three adult barbets (Capitonidae) fed the 5 nestlings and all 8 continued to use the cavity for roosting.

Post, Peter W. MANX, AUDUBON'S AND LITTLE SHEARWATERS IN THE NORTHWESTERN NORTH ATLANTIC. Bird-Banding 38(4): 278-305, 3 figs. Oct. 1967. WR 131: 116

[Columbia Univ. Field Sta., Apartado I-U, Calama, Chile.] Seasonal movements and records of occurrence for Puffinus puffinus, P. lherminieri, P. assimilis.--Courtesy/ Paul A. Stewart.

Rowan, M. K. SOME OBSERVATIONS ON REPRODUCTION AND MORTALITY IN THE CAPE SPARROW PASSER MELANURUS. Ostrich Suppl. no. 6. p. 425-434, 1 fig. 1966. WR 131: 116

[Univ. Cape Town, Cape Town, South Africa.] Comparisons for Passer melanurus populations in the winter-rainfall area of the Cape and the summer-rainfall area of the Transvaal highveld show significant differences in clutch sizes (nearly one egg smaller in the Transvaal), in the proportion of eggs laid which produce flying young (Transvaal, 48%; Cape, 51%), and in the number of banded adults surviving from one breeding season to the next (Transvaal, 52%; Cape, 41%).--From summ.

Snow, D. W. ANNUAL CYCLE OF THE YELLOW WARBLER IN THE GALAPAGOS. Bird-Banding 37(1): 44-49, 1 fig. Jan. 1966. WR 131: 116

[British Trust Ornithol., Beech Grove, Tring, Hertfordshire, England.] Territories and pairs are maintained throughout the year. The breeding season coincides with the wet season but is not initiated by rainfall. Singing occurs in almost every month but is at a minimum about four months after the molt.--From summ. Courtesy/ Paul A. Stewart.

Tickell, W. L. N. COLOR-DYEING ALBATROSSES. Bird-Banding 39(1): 36-40, 1 fig. Jan. 1968. WR 131: 116

[Nature Conservancy, 12 Hope Terrace, Edinburgh, Scotland.] Fifty-seven sightings were obtained from 885 color-marked wandering albatrosses (Diomedea exulans).--Courtesy/ Paul A. Stewart.

von Frisch, Otto, and Heide von Frisch. BEOBACHTUNGEN ZUR BRUTBIOLOGIE UND JUGENDENTWICKLUNG DES HÄHERKUCKUCKS (CLAMATOR GLANDARIUS). [OBSERVATIONS ON THE BREEDING BIOLOGY AND DEVELOPMENT OF THE YOUNG OF THE GREAT SPOTTED CUCKOO.] Z. Tierpsychol. 24(2): 129-136. 1967. [From Bird-Banding 39(1), 1968. In German with English summ.] WR 131: 116

Willoughby, Ernest Jordan. DESERT ADAPTATIONS OF LARKS OF THE CENTRAL NAMIB DESERT, SOUTH WEST AFRICA. Ph.D. thesis, Syracuse Univ. 172 p. 1967. [From Dissertation Abstr. 28(11B), 1968.] WR 131: 116

OTHER BIRDS--Continued

Wodzicki, Kazimierz, and John Moreland. A NOTE ON THE FOOD OF NEW ZEALAND GANNETS. Notornis 13(2): 98-99. June 1966. WR 131: 117
[DSIR, Lower Hutt, New Zealand.] Primarily anchovy (Engraulis australis).

REPTILES & AMPHIBIANS

Adams, Donald R. STOMACH CONTENTS OF THE SALAMANDER BATRACHOSEPS ATTENUATUS IN CALIFORNIA. Herpetologica 24(2): 170-172. 28 June 1968. WR 131: 117
[Univ. Calif., Davis.] Springtails, small beetles, and snails appeared to form the bulk of the diet of B. attenuatus in eastern Butte County, Calif.

Adams, N. G. K. BUFO MARINUS EATEN BY RATTUS RATTUS. North Queensland Nat. 34(143): 5. July 1967. [From J. Mammal. 49(1), 1968.] WR 131: 117

Awbrey, Frank T. CALL DISCRIMINATION IN FEMALE SCAPHIOPUS COUCHII AND SCAPHIOPUS HURTERII. Copeia 1968(2): 420-423. 5 June 1968. WR 131: 117
[San Diego State Coll., San Diego, Calif.]

Brisbin, I. Lehr, Jr. EVIDENCE FOR THE USE OF POSTANAL MUSK AS AN ALARM DEVICE IN THE KING SNAKE, LAMPROPELTIS GETULUS. Herpetologica 24(2): 169-170. 28 June 1968. WR 131: 117
[Savannah River Ecol. Lab., Aiken, S.C.] A female chain king snake had not emitted musk during 3 years of captivity, despite occasional rough handling. Upon being placed on a laboratory table which retained traces of musk odor from a recently handled male Florida king snake, the female appeared extremely disturbed and began emitting musk from the postanal glands.

Brodie, Edmund D., Jr. INVESTIGATIONS ON THE SKIN TOXIN OF THE ADULT ROUGH-SKINNED NEWT, TARICHA GRANULOSA. Copeia 1968(2): 307-313, 1 fig. 5 June 1968. WR 131: 117
[Oreg. State Univ., Corvallis.] Results of testing 30 spp. of potential predators to determine their susceptibility to adult T. granulosa skin toxin.

Bustard, H. Robert. THE REPTILES OF MERRIWINDI STATE FOREST, PILLIGA WEST, NORTHERN NEW SOUTH WALES, AUSTRALIA. Herpetologica 24(2): 131-140, 3 figs. 28 June 1968. WR 131: 117
[Australian Natl. Univ., Canberra, Australia.] Species account of 26 spp.

Cei, J. M. NOTES ON THE TADPOLES AND BREEDING ECOLOGY OF LEPIDOBATRACHUS (AMPHIBIA: CERATOPHRYIDAE). Herpetologica 24(2): 141-146, 3 figs. 28 June 1968. WR 131: 117
[Natl. Univ. Cuyo, Mendoza, Argentina.] Description of Lepidobatrachus llanensis and L. asper tadpoles.

Cuellar, Orlando. ADDITIONAL EVIDENCE FOR TRUE PARTHENOGENESIS IN LIZARDS OF THE GENUS CNEMIDOPHORUS. Herpetologica 24(2): 146-150. 28 June 1968. WR 131: 117
[Univ. Colo. Museum, Boulder.] Of 36 unisexual specimens examined cytologically, none had spermatozoa in the vaginal and infundibular regions. Of 9 bisexual C. tigris, 6 revealed varying concentration of spermatozoa in the lumen of the vaginal region.

Dix, Michael W. SNAKE FOOD PREFERENCE: INNATE INTRASPECIFIC GEOGRAPHIC VARIATION. Science 159(3822): 1478-1479. 29 Mar. 1968. WR 131: 117
[Yale Univ., New Haven, Conn.] Abstract: Compared to Florida individuals, a smaller percentage of Massachusetts Thamnophis sirtalis sirtalis will accept fish. Both experienced adults and isolated newborn snakes respond similarly; the behavior is innate and correlated with habitat differences between the two localities. Although food preference in Natrix sipedon is also innate, geographic variation is not as clearcut.

Echternacht, Arthur C. DISTRIBUTIONAL AND ECOLOGICAL NOTES ON SOME REPTILES FROM NORTHERN HONDURAS. Herpetologica 24(2): 151-158, 2 figs. 28 June 1968. WR 131: 118

[Museum Nat. Hist., Univ. Kans., Lawrence.] Comments on 8 spp.

Emlen, Stephen T. A TECHNIQUE FOR MARKING ANURAN AMPHIBIANS FOR BEHAVIORAL STUDIES. Herpetologica 24(2): 172-173, 1 fig. 28 June 1968. WR 131: 118

[Cornell Univ., Ithaca, N.Y.] Individually painted elastic strips fastened around the pelvic girdle can be used to distinguish individual frogs at distances of 25 to 40 feet.

Emlen, Stephen T. TERRITORIALITY IN THE BULLFROG, RANA CATESBEIANA. Copeia 1968(2): 240-243. 5 June 1968. WR 131: 118

[Cornell Univ., Ithaca, N.Y.] Abstract: During the breeding season, adult male bullfrogs, Rana catesbeiana, establish territories from which conspecific males are aggressively excluded. Stereotyped postures, approaches, and physical encounters all function in the defense of such areas. It is proposed that the highly polygamous social system present in this species creates an intense inter-male competition for females, and that possession of a territory directly influences an individual male's chances of successful mating.

Ferguson, Denzel E., James P. McKeown, O. Stuart Bosarge, and Hobart F. Landreth. SUN-COMPASS ORIENTATION OF BULLFROGS. Copeia 1968(2): 230-235, 2 figs. 5 June 1968. WR 131: 118

[Miss. State Univ., State College.] Abstract: Orientational responses of bullfrogs (Rana catesbeiana) were determined on land in a circular arena (50 ft diameter, 6 ft height). During the spring, field-collected frogs used celestial cues to orient on the compass course that intersects the home shoreline at right angles (Y-axis). Bullfrogs exhibited oriented behavior in both daytime and nighttime tests, but not under complete cloud cover. Orientation on the Y-axis ceased in summer tests, but reappeared in the fall. Bullfrogs caged on various natural shores oriented to the Y-axis of their new surroundings in the spring, but failed to do so during the summer. Frogs in captivity and in tests exhibited seasonal variations in behavior that seemed correlated to seasonal changes in Y-axis response. Individuals kept in pens with small artificial pools at one end oriented in the direction of the pools in tests. Although frogs normally moved toward water on the Y-axis, subadults moved in an opposite direction when tested at night.

Gans, Carl. THE FEEDING MECHANISM OF SNAKES AND ITS POSSIBLE EVOLUTION. Am. Zool. 1(2): 217-227, 5 figs. 1961. WR 131: 118

[Univ. Buffalo, Buffalo, N.Y.] The initial modification in the feeding mechanism is conceived as a liberation of the mandibular symphysis and a shift from inertial to unilateral feeding. The bony enclosure of the brain, the suspension of the quadrates from the extended supratemporal, the protrusible glottis, prey constriction, and the use of venom are secondary modifications.--From summ.

Garcea, Robert, and George Gorman. A DIFFERENCE IN MALE TERRITORIAL DISPLAY BEHAVIOR IN TWO SIBLING SPECIES OF ANOLIS. Copeia 1968(2): 419-420, 1 fig. 5 June 1968. WR 131: 118

[Harvard Univ., Cambridge, Mass.]

Gaymer, R. THE INDIAN OCEAN GIANT TORTOISE TESTUDO GIGANTEA ON ALDABRA. J. Zool. (London) 154(3): 341-363, 6 figs. + 2 pls. Mar. 1968. WR 131: 118

[Univ. Bristol, Bristol, England.] "Northwest Madagascar."

Gibbons, J. Whitfield. POPULATION STRUCTURE AND SURVIVORSHIP IN THE PAINTED TURTLE, CHRYSEMYS PICTA. Copeia 1968(2): 260-268, 3 figs. 5 June 1968. WR 131: 118

[Savannah River Ecol. Lab., P.O. Box A, Aiken, S.C.]

Grant, David, Oscar Anderson, and Victor Twitty. HOMING ORIENTATION BY OLFACTION IN NEWTS (TARICHA RIVULARIS). Science 160(3834): 1354-1356, 2 figs. 21 June 1968. WR 131: 119
[Stanford Univ., Stanford, Calif.] Abstract: Newts displaced after perfusion of the olfactory epithelium with formaldehyde failed to orient toward home, whereas control animals subjected to oral perfusion with formaldehyde oriented as readily as did untreated controls. Newts with surgically extirpated olfactory nerves failed to home unless their nerves had regenerated. These results strongly suggest a critical role for olfaction in homing behavior.

Greer, Allen E. CLUTCH SIZE IN THE SCINCID GENUS EMOIA. Copeia 1968(2): 417-418, 1 fig. 5 June 1968. WR 131: 119
[Harvard Univ., Cambridge, Mass.]

Gunter, Gordon. FURTHER NOTES ON WEIGHT CHANGES OF STARVING AMPHIUMA MEANS. Herpetologica 24(2): 180-181. 28 June 1968. WR 131: 119
[Gulf Coast Res. Lab., Ocean Springs, Miss.] The amphiuma lived from 9 June 1961 to 13 Feb. 1964 without food while losing 54% of its weight. Shed skins were for the most part consumed.

Harpur, Robert P. OSMORÉGULATION ET MÉTABOLISME DE L'URÉE: COMPARAISON ENTRE BUFO VIRIDIS ET RANA TEMPORARIA. [OSMOREGULATION AND METABOLISM OF UREA: COMPARISON BETWEEN BUFO VIRIDIS AND RANA TEMPORARIA.] Canadian J. Zool. 46(3): 295-301, 2 figs. May 1968. In French with English summ. WR 131: 119
[McGill Univ., Macdonald Coll. P.O., Quebec, Canada.]

Hughes, G. R., A. J. Bass, and M. T. Mentis. FURTHER STUDIES ON MARINE TURTLES IN TONGALAND, I. Lammergeyer no. 7. p. 5-54, 27 figs. + 1 map. Dec. 1967. WR 131: 119
[Univ. Natal, Pietermaritzburg, South Africa.] Continuation of tagging studies and observations on Caretta caretta and Dermochelys coriacea [McAllister, WR 131: 120] on the coast of Tongaland, South Africa. The survey has produced data on adult measurements and weights, the breeding and nesting cycle, incubation period for the eggs, number of eggs and their dimensions, and size of the hatchlings.

Hughes, G. R., and M. T. Mentis. FURTHER STUDIES ON MARINE TURTLES IN TONGALAND, II. Lammergeyer no. 7. p. 55-72. Dec. 1967. WR 131: 119
[Univ. Natal, Pietermaritzburg, South Africa.] Report on the fourth year of research into the breeding habits of the loggerhead (Caretta caretta) and leatherback (Dermochelys coriacea) turtles.

Jenssen, Thomas A., and William B. Preston. BEHAVIORAL RESPONSES OF THE MALE GREEN FROG, RANA CLAMITANS, TO ITS RECORDED CALL. Herpetologica 24(2): 181-182. 28 June 1968. WR 131: 119
[Univ. Okla., Norman.] Calling males within 2-3 m of the speaker reacted with an extended period of silence, then responded with either a more sharply delivered version of the normal call, or a different, more gutteral call resembling a growl.

Kosh, Richard J., and Victor H. Hutchison. DAILY RHYTHMICITY OF TEMPERATURE TOLERANCE IN EASTERN PAINTED TURTLES, CHRYSEMYS PICA. Copeia 1968(2): 244-246, 1 fig. 5 June 1968. WR 131: 119
[Univ. R.I., Kingston.]

Landreth, Hobart F., and Denzel E. Ferguson. THE SUN COMPASS OF FOWLER'S TOAD, BUFO WOODHOUSEI FOWLERI. Behaviour 30(1): 27-43, 5 figs. 1968. In English with German summ. WR 131: 119
[Miss. State Univ., State College.] Summary: Apparatus and techniques were developed to test bufonid's use of celestial cues to find preferred directions in controlled experiments. Toads were trained to select an escape direction

relative to a sun lamp and were found to maintain a course at the same angle to the light cue when the apparatus was rotated, the light moved, when tested outdoors under the sun, and if various lamps (e.g., bright incandescent, dim incandescent, infrared, and red flood) were substituted for the sun lamp. Reference objects, learned muscular movements, sounds, and odors were eliminated as possible orientational cues in this investigation. Toads could not orient to the learned direction when the light cue was obscured and the shadows were evenly distributed. B. w. fowleri possess a clocking mechanism and are able to compensate for the apparent 15° per hour movement of the cue throughout a diel cycle. The azimuth of the cue seems to be more important than the altitude to toads. Trained animals can be diverted from a trained direction by conspecific calls after injections of sex hormones. Celestial orientation is considered a basic orientational mechanism and apparently functions in conjunction with other mechanisms in the natural environment of toads.

Licht, Lawrence E. UNPALATABILITY AND TOXICITY OF TOAD EGGS. Herpetologica 24(2): 93-98. 28 June 1968. WR 131: 120

[Univ. British Columbia, Vancouver, Canada.] Ovarian eggs and newly ovulated eggs from the toad Bufo valliceps were unpalatable to white mice and three fish species. Ovarian eggs were toxic in effect when injected intraperitoneally into white mice and the frog Rana pipiens. Within 8.3 hours after dosage, the assay animals exhibited abnormal behavior and fatal physiological responses. Nontoad-eating snakes died within 5.25 hours after forced ingestion of ovarian eggs; toad-eating snakes showed no after effects.--From summ.

Mahmoud, I. Y. NESTING BEHAVIOR IN THE WESTERN PAINTED TURTLE, CHRYSEMYS PICTA BELLII. Herpetologica 24(2): 158-162. 28 June 1968. WR 131: 120

[Wis. State Univ., Oshkosh.] Five complete nest-digging and egg-laying observations, with 15 fragmentary observations, were recorded; 75 nests were measured for depth, diameter at rim, and diameter at bottom. The turtles were either autopsied or palpated to detect the presence of eggs.

McAllister, H. J., A. J. Bass, and H. J. van Schoor. MARINE TURTLES ON THE COAST OF TONGALAND, NATAL. Lammergeyer 3(2): 11-40, 6 figs. + 8 pls. Feb. 1965. WR 131: 120

[Univ. Natal, Pietermaritzburg, Natal, S. Africa.] Breeding and nesting behavior of Dermochelys coriacea and Caretta caretta, with recommendations for conservation.

Mecham, John S. EVIDENCE OF REPRODUCTIVE ISOLATION BETWEEN TWO POPULATIONS OF THE FROG, RANA PIPIENS, IN ARIZONA. Southwestern Nat. 13(1): 35-43, 2 figs. 28 May 1968. WR 131: 120

[Texas Technol. Coll., Lubbock.] Abstract: Two populations of frogs in the Rana pipiens complex coexist in sympatry in the White Mountains of eastern Arizona. The two forms can be readily distinguished on the basis of coloration, dorsal spotting, dorsolateral ridges, proportions, and presence or absence of oviducts in the male. Limited information indicates differences in habitat preference and breeding season between the two forms. Near normal levels of development to larva were obtained in two interpopulation crosses. A single natural hybrid was identified.

Organ, James A., and Della J. Organ. COURTSHIP BEHAVIOR OF THE RED SALAMANDER, PSEUDOTRITON RUBER. Copeia 1968(2): 217-223, 2 figs. 5 June 1968. WR 131: 120

[City Univ. New York, New York, N.Y.] Abstract: Recently captured adults of Pseudotriton ruber nitidus from Virginia and Pseudotriton ruber ruber from New Jersey were observed in courtship during the spring of 1959 and 1962, respectively. In Virginia, males were found carrying cloacal spermatophores in the fall and spring of the year. Terrestrial courtship and a fall and spring courtship season is postulated for the species. Heterosexual and homosexual courtship patterns are described and found to be the most simple yet observed in the family Plethodontidae. If simplicity indicates primitiveness then Dunn's contention that Pseudotriton is close to the ancestral stock of the family is confirmed.

Pooley, A. C. A PRELIMINARY CHECK-LIST OF THE REPTILES FOUND WITHIN THE MKUZI AND NDUMU GAME RESERVES IN NORTHERN ZULULAND. Lammergeyer 3(2): 41-55, illus. Feb. 1965. WR 131: 121

[Natal Parks, Game & Fish Preservation Board, P.O. Box 662, Pietermaritzburg, Natal, S. Africa.] Annotated list of 64 spp.

Rand, A. Stanley. DESICCATION RATES IN CROCODILE AND IGUANA EGGS. Herpetologica 24(2): 178-180, 1 fig. 28 June 1968. WR 131: 121

[Smithsonian Tropical Res. Inst., Box 2072, Balboa, Canal Zone.] The hard-shelled crocodile eggs are more resistant to desiccation, even after removal of a small section of the hard shell.

Schmid, William D. NATURAL VARIATIONS IN NITROGEN EXCRETION OF AMPHIBIANS FROM DIFFERENT HABITATS. Ecology 49(1): 180-185, 3 figs. Winter 1968. WR 131: 121

[Univ. Minn., Minneapolis.] Aquatic species had lower levels of plasma urea than more terrestrial species. Ammonia content of urine was higher in the more aquatic forms but varied within species depending on the state of hydration of the specimen. High levels of urinary ammonia were used as a basis of critical evaluation of the ecology of Bufo hemiophrys. The adaptive values of natural variations in patterns of nitrogen are discussed relative to interspecific differences in ecology and water balance.--From abstr. Courtesy/ Paul A. Stewart.

Schwartz, Albert. THE CUBAN LIZARDS OF THE ANOLIS HOMOLECHIS COMPLEX. Tulane Studies Zool. 14(4): 140-184, 4 figs. + 1 pl. 27 June 1968. WR 131: 121

[Miami-Dade Jr. Coll., Miami, Fla.] "Anolis quadriocellifer, A. homolechis, A. mestrei, A. allogus, A. ahli, A. rubribarbus, and A. imias."

Smith, Roy E. STUDIES ON REPRODUCTION IN COSTA RICAN AMEIVA FESTIVA AND AMEIVA QUADRILINEATA (SAURIA: TEIIDAE). Copeia 1968(2): 236-239, 1 fig. 5 June 1968. WR 131: 121

[Harvard Univ., Cambridge, Mass.]

Standaert, William Francis. GROWTH, MATURATION, AND POPULATION ECOLOGY OF THE CARPENTER FROG (RANA VIRGATIPES COPE). Ph.D. thesis, Rutgers State Univ. 212 p. 1967. [From Dissertation Abstr. 28(10B), 1968.] WR 131: 121

Ecological information on the metamorphosis, growth, maturation, seasonal activities, sex ratio, age-class structure, and population dynamics is reported, and several new statistical techniques are proposed for the handling of such data.

Thomas, Richard, and Albert Schwartz. SPHAERODACTYLUS (GEKKONIDAE) IN THE GREATER PUERTO RICO REGION. Bull. Fla. State Museum Biol. Ser. 10(6): 193-260, 12 figs. 6 Apr. 1966. Price 90¢. WR 131: 121

Tilley, Stephen G., and Donald W. Tinkle. A REINTERPRETATION OF THE REPRODUCTIVE CYCLE AND DEMOGRAPHY OF THE SALAMANDER DESMOGNATHUS OCHROPHAEUS. Copeia 1968(2): 299-303, 1 fig. 5 June 1968. WR 131: 121

[Univ. Mich., Ann Arbor.]

Whitford, Walter G. PHYSIOLOGICAL RESPONSES TO TEMPERATURE AND DESICCATION IN THE ENDEMIC NEW MEXICO PLETHODONTIDS, PLETHODON NEOMEXICANUS AND ANEIDES HARDII. Copeia 1968(2): 247-251, 2 figs. 5 June 1968. WR 131: 121

[N. Mex. State Univ., Las Cruces.]

Zweifel, Richard G. EFFECTS OF TEMPERATURE, BODY SIZE, AND HYBRIDIZATION ON MATING CALLS OF TOADS, BUFO A. AMERICANUS AND BUFO WOODHOUSII FOWLERI. Copeia 1968(2): 269-285, 10 figs. 5 June 1968. WR 131: 121

[Am. Museum Nat. Hist., New York, N.Y.]

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As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of this department of natural resources.

The Department works to assure the wisest choice in managing all our resources so that each shall make its full contribution to a better United States now and in the future.

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